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PRONTOSIL IN THE TREATMENT OF ERYSIPELAS

A CONTROLLED SERIES OF 312 CASES*

BY

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There is by this time a considerable literature on the experimental and clinical results of the use of prontosil and the sulphonamide derivatives. It is not intended to review that literature in this paper. It may be pointed out, however, that so far as erysipelas is concerned no work has been published dealing with a large series of cases properly controlled. There has not been comparison with other cases of the disease during the same period of review, in every way similar as regards nursing and diet and differing solely in the special lines of treatment to be investigated. Such a series is presented here.

The material consists of all cases diagnosed as erysipelas after admission to Ruchill Hospital, Glasgow, from the middle of May, 1936, to the middle of February, 1937. Erysipelas is a notifiable disease, and Ruchill Hospital receives all notified cases of erysipelas admitted to hospital in Glasgow, so that the material is thoroughly representative of the incidence of the disease in this district during the period reviewed. All the patients were under the clinical control of one of us (T. A.).

Plan of Investigation

Apart from the specific treatment shortly to be described all cases were treated under strictly comparable conditions. Thus the wards to which they were admitted and the personnel of the nursing staff were common to all groups. A standard diet was adopted. When required the same laxatives were used. No local treatment was given. Ultra-violet light was chosen for the treatment of the control series because it was already the routine method employed in the hospital. There is a considerable literature indicating its value in the treatment of erysipelas. Publications by Fantus (1934), Titus (1934, 1934a), Sutherland and Day (1935), and Lavender and Goldman (1935) may be cited in evidence. The first 161 cases were, in order of admission, allocated to three special groups. Group 1 received treatment only by ultra-violet light; Group 2 only by prontosil; Group 3 both by ultra-violet light and by prontosil. The fatality rate when 161 cases had been admitted was exceptionally low, and as two-thirds of the series had received prontosil it was thought advisable to alter the proportion of cases treated with this drug. Therefore the second 151 cases were divided into three groups, of which the first two were the same as before, but the cases in the third group received treatment solely with Messrs. Burroughs Wellcome's concentrated scarlet fever antitoxin (globulin fraction).

* A Report to the Therapeutic Trials Committee of the Medical Research Council.

The numbers in each section vary slightly, since six cases were removed. In these it was considered, after further observation, that the original diagnosis of erysipelas was doubtful. Thus the actual numbers in the treatment groups are: ultra-violet light, 104; prontosil, 106; U.V.+ P., 54; antitoxin, 48. As the cases which received ultra-violet light or prontosil in the first series of 161 are strictly comparable to those similarly treated in the second group of 151, comparison is permissible between the cases receiving ultra-violet light and prontosil in the first series and those treated by scarlet fever antitoxin in the second group.

Details of Treatment

Ultra-violet Light.—A portable mercury-vapour lamp (Messrs. Kelvin, Bottomley, and Baird) was used at a distance of twelve inches from the margin of the lesion. For female cases the exposure was of eight minutes' duration, equal to one and a half erythema doses; for male cases the exposure was for ten minutes—in each case once daily. Exposures were repeated at intervals of twenty-four hours when considered necessary. The average number of exposures per case was 2.6.

Prontosil.—The original prontosil "red" of Messrs. Bayer Products, Ltd., was used. Treatment was begun on admission. The drug was given by mouth. The dosage was 1, 2, or 3 tablets of 0.3 gramme each at four-hourly intervals, and administration was continued until the temperature became normal, this being according to the original recommendation. The average case dosage was 5 grammes; the minimum dosage was 1.2 grammes, the maximum 15 grammes. Prontosil "soluble" was given by the intramuscular route in ten cases. In four it was the only method of employing the drug—the average quantity given being 1.5 grammes. In the other six prontosil "red" was also given by mouth. In these six cases the average dosage of prontosil "soluble" was 1 gramme in all. Cyanosis occurred in two cases. It was the only toxic effect present in this series. It was not severe, was only of short duration, and did not prevent the resumption of the drug. No saline purgatives or sulphur were used in any of the 312 cases.

Ultra-violet Light plus Prontosil.—This was a combination of the methods of treatment just described.

Scarlet Fever Antitoxin. One dose was given on admission, either by the intravenous or by the intramuscular route. A further injection was given in a few cases only.

The average dosage was 30 c.cm., equal to 30,000 units. All the patients were desensitized before the antitoxin was administered.

Records of Results

The following data were noted in each case: sex, age, duration of illness before admission, and whether the disease was primary or recurrent, idiopathic, or traumatic. The local lesion was considered with regard to its site, extent, swelling, painfulness, and tenderness; the patient's temperature and pulse rate were recorded four-hourly; and toxaemia was estimated under the following headings —prostration, headache, state of tongue, insomnia, vomiting, abdominal distension, and delirium. The urine was examined daily. Intercurrent diseases or degenerations were described; complications, relapses, and recurrences were noted. Each case was reviewed daily. In short, a careful attempt was made to record similar observations on each case in a comparative manner.

Assessment of Results

1. The distribution of the individual cases in the different treatment groups must be considered in respect of certain factors known to influence the course of the disease. Those regarded of greatest importance are (*a*) the duration of the disease before admission to hospital; (*b*) the age of the patient; (*c*) the severity of the infection; (*d*) associated diseases. All that need be stated at present is that tables constructed to show the relation of these factors to the types of treatment indicate an even distribution. A statistician who has examined them is satisfied that there was no weighting of any one line of treatment by any of these factors.

2. The question when "cure" is achieved has to be determined. The fatality rate in erysipelas is so low that it cannot be used in a small series of cases to assess the value of a therapeutic measure. It has other disadvantages, to be mentioned later. There is no single clinical feature which can be regarded as a satisfactory criterion of recovery. Cases are seen where the lesion continues to spread after the temperature has become normal; and, again, it is not uncommon for the local lesion to cease spreading while the temperature is still elevated and the patient continues in a toxic condition. In order to arrive at a conclusion in this series of cases attention was paid to the following points from the commencement of treatment: (i) the duration in days of spread of the local lesion; (ii) the duration in days of the primary pyrexia; (iii) the time in days which elapsed until the patient was free from the toxic symptoms. It was felt that the information gained from these observations would allow a comparison to be made between the effects of different methods of treatment.

Results of Treatment

Reference to the second paragraph under the heading "Plan of Investigation" will show that the number of cases treated with either ultra-violet light or prontosil alone is approximately double that of cases treated with ultra-violet light plus prontosil or with scarlet fever antitoxin alone. This must be borne in mind when considering the following tables. In compiling these tables patients who died have been excluded. There were fifteen deaths, and therefore the total number of cases is reduced to 297. The reasons for the exclusion of fatal cases from the first three tables will be mentioned later.

TABLE I.—*Spread of Lesion*

Method of Treatment	0 Days	1 Day	2 Days	3 Days	4 Days	5 Days and Over	Total Cases
Ultra-violet light ..	32 (32.65)	26 (26.53)	17 (17.34)	11 (11.22)	5 (5.1)	7 (7.14)	98
Prontosil	48 (47.06)	36 (35.29)	16 (15.69)	1 (0.98)	1 (0.98)	0	102
U.V. light + prontosil	19 (35.85)	26 (49.06)	7 (13.21)	0	1 (1.89)	0	53
Antitoxin	14 (31.81)	7 (15.91)	10 (22.73)	9 (20.45)	4 (9.09)	0	44

The figures in parentheses are percentages.

Table I shows a slightly more favourable result as regards cessation of spread in those cases which received prontosil, either alone or in combination with ultra-violet light. Thus the proportion of cases which showed no spread in the lesion after the end of the first day are: ultra-violet light, 59 per cent.; prontosil, 82 per cent.; U.V.+ P., 85 per cent.; antitoxin, 48 per cent. After two days in hospital the lesion continued to spread in only 2 per cent. of all cases receiving prontosil, but with the other forms of treatment the lesion continued to spread in 25 per cent.

TABLE II.—*Duration of Primary Pyrexia*

Method of Treatment	Duration of Pyrexia in Days								Total Cases
	0	1	2	3	4	5	6	More than 6	
Ultra-violet light	9	16 (17.98)	27 (30.34)	12 (13.48)	11 (12.36)	4 (4.49)	9 (10.11)	10 (11.24)	98
Prontosil ..	10	37 (40.22)	33 (35.87)	14 (15.22)	2 (2.17)	5 (5.43)	0	1 (1.09)	102
U.V. light + prontosil	2	18 (35.29)	20 (39.22)	8 (15.69)	2 (3.92)	0	1 (1.96)	2 (3.92)	53
Antitoxin ..	4	10 (25)	4 (10)	2 (5)	7 (17.5)	5 (12.5)	6 (15)	6 (15)	44

The figures in parentheses are percentages given after deducting those cases which were apyrexial.

Table II shows a slightly more favourable result as regards duration of pyrexia in those cases which received prontosil either alone or in combination with ultra-violet light than in the others. Thus after deducting the cases which were apyrexial the percentages of those with no fever after forty-eight hours' treatment are: ultra-violet light, 49; prontosil, 76; U.V.+ P., 74.5; antitoxin, 35. Pyrexia continued for more than three days in only 8 per cent. of all cases receiving prontosil, but with the other forms of treatment the equivalent percentage was 41.

TABLE III.—*Duration of Toxaemia*

Method of Treatment	Duration of Toxaemia in Days								Total Cases
	0	1	2	3	4	5	6	More than 6	
Ultra-violet light	11	12 (13.79)	22 (25.29)	19 (21.84)	15 (17.24)	6 (6.9)	4 (4.59)	9 (10.34)	98
Prontosil ..	5	18 (18.56)	40 (41.24)	22 (22.68)	7 (7.22)	7 (7.22)	1 (1.03)	2 (2.06)	102
U.V. light + prontosil	3	11 (22)	18 (36)	8 (16)	6 (12)	3 (6)	2 (4)	2 (4)	53
Antitoxin ..	5	4 (10.26)	4 (10.26)	5 (12.82)	8 (20.51)	7 (17.95)	5 (12.82)	6 (15.38)	44

The figures in parentheses are percentages given after deducting those cases in which there was no toxaemia.

Table III shows a slightly more favourable outcome as regards duration of toxaemia in those cases which received prontosil either alone or in combination with ultra-violet light. Thus after deducting the cases with no assessable degree of toxaemia the percentages of those free from signs of toxaemia at the end of forty-eight hours' treatment were: ultra-violet light, 39; prontosil, 60; U.V. + P., 58; antitoxin, 16. After three days in hospital 21 per cent. of all cases receiving prontosil remained toxic; the equivalent percentage with the other forms of treatment was 39.

In the paragraph "Records of Results" the component elements investigated under the heading of toxaemia are given. While it is admitted that the precise duration of toxaemia is difficult to assess clinically, the observations were all made and recorded by the same individual. It is therefore considered that they have a certain comparative value.

Some further points now call for consideration.

Recurrence

Table IV shows the number of recurrences which took place in each treatment series. Deaths are not excluded from this table; accordingly the total is 312 cases.

TABLE IV.—*Recurrences*

Method of Treatment	Number of Recurrences	Total Cases
Ultra-violet light	12 (11.5%)	104
Prontosil	9 (8.5%)	106
U.V. light + protonsil	3 (5.5%)	54
Antitoxin	3 (6.3%)	48

No significant difference was found in this series that would point to the action of prontosil in preventing recurrences. It must be remembered, however, that treatment of all types was given during the acute stage only, and was not maintained after the subsidence of the local lesion and the cessation of fever and toxaemia. In a further series we are now undertaking instead of prontosil "red" a variety of the colourless sulphonamide is being used, and there will be a longer period of treatment with the drug in the hope of lessening the incidence of recurrence.

Complications

Table V shows the incidence of those septic complications directly attributable to infection with erysipelas. Among such conditions are abscess formation, septicaemia, thrombosis, and nephritis. Deaths are included in this table.

TABLE V.—*Cases Showing Complications*

Method of Treatment	Number of Cases showing Complications	Total Cases
Ultra-violet light	32 (30%)	104
Prontosil	23 (21%)	106
U.V. light + prontosil	14 (26%)	54
Antitoxin	20 (41.6%)	48

Although there is a lower complicated-case rate in the patients treated with prontosil, the percentage is higher where prontosil and ultra-violet light are used together. In the prontosil-treated groups, however, the combined incidence of complications is 23.1 per cent., in the other treatment groups the combined incidence of complications is 34.2 per cent. This difference is suggestive.

One type of complication deserves special mention. The incidence of nephritis in the four treatment groups is: ultra-violet light, seven cases; prontosil, *nil*; U.V. + P., one case; antitoxin, *nil*. It has been suggested that prontosil may have an irritant effect on the kidneys: this is not borne out by these figures.

The question of associated diseases—metabolic, degenerative, or infective—must also be considered. This factor is difficult to present succinctly, and is, on the whole, associated with the age groups. From an examination of the case records it is not thought to be of any importance in this series as regards the prolongation of the course of erysipelas, but it is of considerable importance with respect to the percentage of deaths.

Deaths

The number of deaths was fifteen out of 312, a percentage of 4.8. This is low if compared with the annual fatality rate given for Ruchill Hospital in the medical

TABLE VI.—*Details of Fatal Cases*

Sex and Age	Treatment	Amount of Therapeutic Agent administered	Complicating Diseases	Days in Hospital	Remarks
M. 50	Ultra-violet light	3 doses; 2nd, 3rd, and 4th days	Nil	4	Pyaemia and septic arthritis confirmed p.m. Blood culture, positive strep.
F. 74	,,	3 doses; 5th, 6th, and 7th days	Chronic myocarditis	2	Auricular fibrillation. No p.m.
F. 54	,,	3 doses; 3rd, 4th, and 5th days	Carcinoma of pharynx being treated with radium needles	3	No p.m.
M. 69	,,	3 doses; 4th, 5th, and 6th days	Chronic myocarditis	11	Bronchopneumonia and nephritis. No p.m.
M. 67	,,	3 doses; 2nd, 3rd, and 4th days	Cholecystectomy performed immediately before admission	33	Left hospital in dying condition. Abscess of scalp. Acute nephritis. Uraemia
M. 40	Initial U.V. light failed; given prontosil	3 doses U.V. light: 1.5 gm. prontosil	Alcoholism	15	P.m.: Haemorrhagic nephritis. Streptococcal empyema
M. 18/365	Prontosil	3.9 gm. given in 2 days	Penis incised before admission as ? cellulitis	19	Recurrence. Extreme toxaemia. Abscess of sacrum
M. 76	,,	4.8 gm.	Advanced epithelioma of ear	2	No. p.m.
F. 4/12	,,	2.7 gm. + 3.3 gm. + 0.125 g m. For 2nd and 3rd attacks	Nil	18	Had two recurrences. P.m.: Streptococcal meningitis
M. 80	,,	7.8 gm. given in 2 days	Nil	10	Cerebral thrombosis. No p.m.
F. 50	U.V. light and prontosil	2 doses and 80 c.cm.	Previously paralysed	19	P.m.: Cerebral thrombosis. Erysipelas quite subsided at time of death
F. 54	Antitoxin	50 c.cm. { 30 c.cm. IV. 20 c.cm. IM. }	Diabetes mellitus	2	No p.m.
F. 58	,,	30 c.cm. IV.	Diabetes mellitus	10	No p.m.
M. 50	,,	30 c.cm. IV.	Alcoholism	5	P.m.
M. 57	,,	30 c.cm. IM.	Chronic myocarditis	2	No p.m.

officer of health's annual returns. The percentages there for the past few years are: 1935, 7.5; 1934, 7.6; 1933, 9.3; 1932, 9.6; 1931, 7.7. These percentages include all patients classified in the hospital returns as cases of erysipelas, which represent two-thirds of all notified cases in Glasgow, amounting to about 670 admissions a year. A number of cases so classified have been omitted from the present series where there was doubt as to the clinical diagnosis. This makes the figures difficult to compare.

A point of general interest which has been noted in connexion with similar work conducted on other diseases may be mentioned—namely, that an investigation of this type is undoubtedly beneficial to the cases as a whole. The nursing and medical staff are keenly interested; observation is more acute and sustained; and complaints and complications are watched for and dealt with immediately.

The fifteen deaths are distributed as follows: ultra-violet light, six; prontosil, four; ultra-violet light and prontosil, one; antitoxin, four. These figures must be considered along with causes of death and the complicating diseases. Table VI gives the relevant information.

It is obvious that the cases which ended fatally ought not to be included in the tables concerned with the assessment of the results of treatment. Otherwise a patient who died on the second day in hospital would be shown to have ceased to exhibit spread of lesion, pyrexia, and toxaemia on the second day. It is apparent from these data that no definite conclusions can be drawn from the fatality rate as to the relative values of the different methods of treatment. Death is often determined by the combination of erysipelas and some other disease. Nevertheless in the series of 160 cases receiving prontosil alone or combined with ultra-violet light the fatality rate was 2.5 per cent., while in the 152 cases not receiving prontosil the fatality rate was 6.6 per cent.

Discussion

There is little to add to the comments already made on the data presented. We would emphasize the difficulties attendant on drawing conclusions from the treatment of a disease so variable in its severity as erysipelas. Among important variables difficult to assess are the virulence of the infection and the natural resistance of the patient. In this connexion the general bodily health of the patient and the presence or absence of associated conditions—metabolic, degenerative, or infective—are of consequence. A very large series indeed would be required before one could assert that all such factors were evenly distributed. The cases were arbitrarily grouped in grades of severity, termed mild, moderate, or severe; since mild and moderate grades of infection will tend to recover spontaneously, it was thought that more valuable information might be obtained by considering in detail the cases grouped under the heading "severe." The total number of such cases was, however, only forty-nine, spread over the four treatment groups. This number is too small to permit of any deductions being made from it alone, although the results are in favour of prontosil treatment.

We can state that in this series, so far as we can detect, no known factor is unduly preponderant in one group of cases, and the cases in the different groups seem to us reasonably comparable. Nevertheless, while it is desirable that the therapeutic trial of a new drug should be made on statistical evidence as far as possible, there is a place for the expression of a clinical opinion. In five of the cases originally entered in the prontosil groups the condition on admission was so severe that a fatal result would not have been unexpected. It was felt that prontosil definitely contributed to their recovery. One case which was originally in the ultra-violet group showed uncontrolled spread with high pyrexia for six days, and was in the typhoid state when it was decided to employ prontosil; the patient's recovery was completely unexpected. This case has been left in the ultra-violet light series and does not affect the percentages in the tables. Two further cases in the ultra-violet light series also received prontosil at a later date. These likewise do not affect the percentages.

The benefits due to prontosil in erysipelas are statistically assessable and are great enough to render the use of such drugs advisable in this disease until some better form of treatment is available, but the action cannot on the whole be termed dramatic.

Conclusions

1. A series of 312 cases of erysipelas was treated under controlled conditions with (*a*) ultra-violet light; (*b*) prontosil; (*c*) ultra-violet light and prontosil; or (*d*) scarlet fever antitoxin.

2. There was an even distribution of the individual cases in the treatment groups in respect of factors known to influence the course of the disease, such as (*a*) the duration of the disease before admission to hospital; (*b*) the age of the patient; (*c*) the severity of the infection; (*d*) associated diseases.

3. The average case dosage of prontosil was 5 grammes; the average duration of prontosil treatment was two days. Treatment was given during the acute stage only, and was not maintained after the subsidence of the local lesion and the cessation of fever and toxaemia.

4. The cumulative evidence indicates that those cases which received prontosil showed better results in respect of curtailment of (i) the duration of the spread of the local lesion; (ii) the duration of primary pyrexia; (iii) the duration of toxaemia.

This study was undertaken at the request of the Therapeutic Trials Committee of the Medical Research Council. We are indebted to Messrs. Bayer Products, Ltd., for the supplies of prontosil "red" and of prontosil "soluble." The χ^2 values and standard errors of the tables have been calculated by Dr. P. L. McKinlay, Medical Officer, Department of Health for Scotland. The statements made in the text are all borne out by the values found. We wish to express our thanks to him for his services. We are also indebted to Dr. W. M. Elliott, superintendent of the Ruchill Fever Hospital, for permission to carry out this investigation.

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The scientific exhibits at the Paris International Exhibition are grouped in the Grand Palais (Champs Elysees), which has been incorporated as part of the exhibition under the title "Palace of Discovery." Here exhibits from all parts of the world demonstrate scientific progress throughout the centuries. Sections are devoted to physics, chemistry, medicine, and surgery, and to each of these important contributions have been made by the Wellcome Historical Medical Museum. They include a collection of stethoscopes, showing the development of the instrument from the time of its invention to the present day, an exhibit showing the evolution of the clinical thermometer, and another illustrating the history of the transfusion of blood.

AGRANULOCYTOSIS AND PARA-AMINO-BENZENE SULPHONAMIDE

BY

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Kracke and Parker (1933, 1934) presented evidence that agranulocytosis might be caused by certain drugs, notably amidopyrine, phenacetin, certain gold salts, and arsphenamine. They pointed out that structurally these drugs possess in common the benzene ring with an attached NH_2 or amine group, which increases the ease of oxidation. A consideration of the formula of sulphanilamide suggested to us the possibility that this drug might

Para-aminobenzene sulphonamide.

also be capable of producing agranulocytosis. The matter appeared to be one of importance for various reasons. First, if the drug reduced the polymorph concentration in the blood in cases of infection against which it was therapeutically ineffective, it might affect unfavourably the course of the disease. Secondly, sulphanilamide is used in acute infections which are not infrequently fatal, and where the latter outcome resulted from agranulocytosis this might readily escape observation. Thirdly, the drug is available to the general public and has received considerable publicity in the lay press.

It was decided, therefore, to make observations on the leucocytes in sulphanilamide-treated patients. Complete agranulocytosis with fatal result occurred in the second case investigated. While the possibilities are obvious, it naturally cannot be determined whether this occurrence was or was not due to the administration of this drug.

Case of Agranulocytosis

The patient was a man of 53 suffering from acute rheumatism with joint pains and pyrexia. There was a history of previous attacks in 1901, 1908, and 1914. The condition failed to respond to salicylates, and prontosil album (3 grammes daily for eighteen days) was given. At the end of this period the clinical condition had deteriorated, the temperature running at a higher level than before, and treatment was stopped. Four days afterwards complete agranulocytosis was found, and blood culture, which had given no growth three weeks previously, now gave haemolytic *Staphylococcus aureus* and *Streptococcus viridans*. The patient died the following day.

The treatment administered is summarized in Table I, and the haematological observations in Table II.

TABLE I.—*Drugs administered*

Date	Drug	Dosage
8–11/4/37	Sodium salicylate	60 grains daily
18–23/4/37	„	60 „ „
12 and 18/4/37	Aspirin	50 „ „
26/4/37	„	30 „
3–21/5/37	Prontosil album (orally)	3 grammes „
13/5/37	Medinal	7½ grains
14/5/37	Veronal	10 „
19/5/37	Chloral	10 „
20/5/37	Veronal	10 „
25/5/37	Chloral	10 „
„	Pentnucleotide	0.7 gramme
26/5/37	Veronal	10 grains

TABLE II.—*Blood Counts*

	Dates							
	5/5/37	7/5/37	11/5/37	14/5/37	20/5/37	25/5/37	26/5/37*	
Haemoglobin ..	90						82	per cent.
Leucocytes ..	12,000	9,800	8,200	9,700	7,800	1,800	2,300	„c.mm.
Polymorphs ..	6,600	5,047	4,633	6,984	5,694	0	0	„ „
Lymphocytes ..	4,344	3,577	2,214	2,085	1,755	1,800	2,300	„ „
Monocytes ..	660	784	861	388	351	0	0	„ „
Eosinophils ..	396	392	410	194	0	0	0	„ „
Basophils ..	0	0	41	0	0	0	0	„ „
Myelocytes ..	0	0	41	49	0	0	0	„ „
Arneth Count I	32	32	41	59	58	0	0	„ cent.
Arneth Count II	45	44	41	34	34	0	0	„ „
Arneth Count III	21	24	17	7	8	0	0	„ „
Arneth Count IV	2	0	1	0	0	0	0	„ „
Arneth Count V	0	0	0	0	0	0	0	„ „
Lobes per 100 polymorphs ..	193	192	178	148	150	0	0	„ „
Classes I + II ..	5,082	3,800	3,772	6,510	5,244	0	0	„c.mm.
Degenerative index† ..	0	0	0	0	2	–	–	„ cent.

* 26/5/37, post-mortem counts, three hours after death: red cells, 4,290,000; reticulocytes, 75,000; platelets, 141,000 per c.mm.
† Percentage of polymorphs showing toxic granulation.
All counts were made about the same time each morning.

Skin rashes occurred on April 14 and May 12, 21, and 24. Traces only of albumin were found in the urine on four occasions.

Post-mortem Findings

The post-mortem examination was made three hours after death. An inflammatory lesion covered with greyish-white membranous exudate was present in the pharynx, showing a patchy distribution over the sides and posterior surface of the pharynx and posterior surface of the epiglottis. The membrane consisted of the necrosed superficial tissues infiltrated with masses of cocci. Collections of lymphocytes were present but no polymorphs. Bacteriological examination showed the predominating organisms to be haemolytic *Staphylococcus aureus* and *Streptococcus viridans*, and was negative for diphtheria.

The blood in the heart was not coagulated, so allowing counts to be made. A few minute nodules due to simple non-ulcerative endocarditis were present on the mitral valve and were presumably of rheumatic origin; no bacteria were observed in them.

The right kidney showed a moderate hydronephrosis due to an aberrant artery, but only slight damage to the renal structures was found microscopically. The liver (1,555 grammes), spleen (175 grammes), and other organs revealed nothing of note.

Bone Marrow.—The distribution of red marrow was normal, being present in vertebra, sternum, and ribs, while that in the right tibia and femur was fatty, only the head of the femur and upper part of the shaft showing some pink coloration. Microscopically there was a complete absence of all granular cells, both neutrophil and eosinophil, while cells of the lymphocyte series, mega-

karyocytes, and nucleated red cells were numerous in the red marrow. Spectroscopic examination of the blood for sulphaemoglobinaemia was negative. Death was considered to be due to agranulocytic angina with septicaemia.

Discussion

Between May 3 and 21 54 grammes of prontosil album were given. Agranulocytosis developed some time between May 20 and 25. A feature of the case was the failure of serial leucocyte counts to give warning of the impending disaster, the changes being merely those of a progressively active infection. An increased output of young polymorphs (Arneth classes I + II, Table II) was well maintained till May 20, after which a rapid failure in their production evidently occurred. The types of myeloid bone marrow found in cases of agranulocytosis include aplastic, normal, and hyperplastic varieties (Beck, 1933). The present case belongs definitely to the aplastic type.

Of the various drugs administered, chloral and the barbiturates do not contain the benzene ring. Barbiturates have been frequently used in association with amidopyrine in recorded cases, and an adjuvant effect has been suggested, but available evidence is against their being independently effective. Salicylates contain the benzene ring with no amino group; there is little evidence that they can cause agranulocytosis, and in any case none had been given within twenty-four days of the onset of the condition. Kracke (1932) produced experimental agranulocytosis in rabbits with benzene, but concluded that oxidation products were probably responsible. Kracke and Parker (1934) later recorded that there was constantly increasing evidence that the condition was caused for the most part by easily oxidizable benzene-ring drugs.

Marshall, Emerson, and Cutting (1937) have investigated the excretion of sulphanilamide, and found that 100 per cent. of the daily dose could frequently be recovered in the urine as free sulphanilamide and a conjugated form—para-acetylaminobenzene sulphonamide. They add, however, that it is possible under certain conditions that a small amount is excreted in some other form or eliminated through some other channel than the kidneys. They showed in a case with impaired renal function that there was delay in excretion of the drug.

Cases of agranulocytosis have been recorded in which no drugs appear to have been taken and no obvious cause could be found, so that a definite conclusion in regard to the causation in the present case is not justified.

Summary

1. A case of fatal agranulocytic angina is recorded.

2. The bone marrow showed complete myeloid aplasia.

3. The only benzene-ring drug administered within twenty-four days of the development of agranulocytosis was sulphanilamide.

4. The agranulocytosis appeared to be either of the idiopathic type of unknown aetiology or to be due to sulphanilamide.

I am indebted to Dr. J. K. Rennie for the clinical material and data, and to Dr. J. A. Price and Mr. G. C. Holliday for assistance with some of the investigations.

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FOOD POISONING—ITS EPIDEMIOLOGY AND BACTERIOLOGY*

BY

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The term "food poisoning" is conventionally restricted to an acute gastro-enteritis caused by the ingestion of food or drink which either contains living bacteria capable of setting up an acute inflammatory condition of the alimentary tract or contains toxic substances produced by various types of bacteria that have an irritant effect upon the gastro-intestinal mucosa. This definition does not include "botulism," a disease which presents no symptoms of gastro-enteritis, but which is nevertheless a form of food poisoning caused by the absorption from the alimentary canal of a specific toxin elaborated under suitable conditions by the *Clostridium botulinum*.

During recent years the number of organisms proved to be capable of giving rise to food poisoning in one or other of its forms has greatly increased. Since the isolation of *B. enteritidis* by Gaertner in 1888—followed ten years later by the isolation of *B. aertrycke*, or *Bact. typhi murium* as this organism is now called, by Durham in England and de Nobele in Belgium, both organisms being undoubtedly responsible for cases of food poisoning—at least twenty-seven members of the Salmonella group have been identified with actual outbreaks of food poisoning in human beings. It is of importance to note, too, that some pathogenic intestinal organisms normally giving rise to one particular type of disease may on occasion cause another kind of illness—for example, the dysentery organisms may produce the typical symptoms of food poisoning.

It is difficult to assess with any degree of accuracy the prevalence of food poisoning. Many solitary cases must undoubtedly go undetected, but with increased laboratory facilities such cases are being detected with greater frequency. In some form or other cases occur fairly often in this country—for example, fifty-eight outbreaks were recorded at the Ministry of Health in 1934, and of 137 outbreaks of suspected food poisoning in 1935 only twelve were excluded as not food poisoning. In America and Germany the incidence seems to be considerably higher.

Food poisoning may be conveniently discussed under three headings: (1) that due to the multiplication within the body of pathogenic bacteria present in food, and referred to as the "infection" type; (2) that due to the ingestion of certain substances formed as the result of bacterial multiplication in the food before ingestion—the "toxin" type; and (3) that due to the toxin of *Clostridium botulinum*—"botulism."

The "Infection" Type

Among the organisms responsible for the "infection" type members of the Salmonella group are the most common, but members of the dysentery group, more especially the Sonne bacillus and *B. dysenteriae* Flexner, must be included. In 1934 Salmonella infections were discovered in twenty-two instances, of which fourteen were, so far as could be ascertained, solitary cases, and during 1935 these were found on fifty-three occasions; twelve outbreaks during the latter year, however, were caused by dysentery bacteria, of which eight were due to the Sonne bacillus, three to *B. dysenteriae* Flexner, and

* Paper read at the Congress of the Royal Institute of Public Health and Institute of Hygiene, Margate, 1937.

one to the Newcastle–Manchester type of dysentery organisms. An outbreak of acute gastro-enteritis affecting about eighteen individuals who had partaken of cockles presumably contaminated with *Proteus vulgaris* is recorded by Dr. Allan Gray (1937).

I have included in the Salmonella group only those organisms which give rise to acute gastro-enteritis, as distinct from those causing the "enteric" type of disease. By some authorities *B. typhosus* as well as the paratyphoids are placed together in the Salmonella group; and from antigenic analysis this is quite justifiable. The "O" or somatic antigen of *B. typhosus* is exactly the same as the somatic antigen of *B. enteritidis* and its numerous varieties: *B. paratyphosus* B has the same somatic antigen as *B. aertrycke, stanley, derby, reading,* and so on. But in other respects the enteric group differ greatly from those I have included in my Salmonella group: the incubation period of the disease they produce is considerably longer, the symptomatology is different, the enteric group are not natural pathogens of animals, and transmission of the disease is confined ultimately to the human carrier. In fact, the whole problem of the prevention of enteric fever consists in stopping the various routes by which the bacteria may pass from the intestine of one human being to the mouth of another, whereas in the food-poisoning organisms there are additional factors to consider.

But seeing that all these bacteria are so closely related antigenically it is not surprising that some of them give rise on occasion to one type of disease and on occasion to another—for example, *Bact. cholerae suis,* var Kunzendorf, often known as the Western European type of *paratyphosus* C or *Bact. suipestifer,* usually gives rise to a continued fever of the enteric type, but infection may take the form of an acute gastro-enteritis; and, similarly, *Bact. typhi murium* or *B. aertrycke,* though generally causing an acute gastro-enteritis, does occasionally bring about a continued fever. Even varieties of the same type of organism may cause different symptoms—for example, there are eight varieties of *Bact. enteritidis,* most of them antigenically similar and differing from one another only in some of their fermentation reactions (the Stern glycerol reaction, Bitter's rhamnose fermentation test, and *d*-tartrate fermentation reaction). Some of these give rise to the enteric type of disease and others to acute gastro-enteritis. Some time ago I was able to isolate *Bact. senftenberg,* var. Newcastle, from the faeces of a patient who showed the typical symptoms of a paratyphoid infection. An extract from his case sheet on admission to hospital on July 10, 1935, reads: "In bed since the 4th inst., complained of severe frontal headache; patient appeared very ill, feverish; rash fairly well marked over the body, but brighter over the arms, wrists, and legs. Temperature 101.6°, pulse 120, respirations 26. History of constipation; complains of pains and stiffness over the arms, shoulder-joints, and legs." The patient's serum agglutinated Oxford Standards Salmonella group suspension only up to a dilution of 1 in 320, with no agglutination with *paratyphosus* A or *paratyphosus* B suspensions.

In the case of *Bact. thompson,* I have isolated this organism from the faeces of two patients in different parts of this county during the past twelve months; the cases were quite unrelated and both were fatal. Each showed the symptoms of *B. typhosus* infection, but no Widal examination was made. When I rang up the doctor in one case he was rather surprised at the result: the patient had died the previous day, and the doctor had just filled in the death certificate, recording the death as due to typhoid fever. It might be argued that his patient died of a typhoid infection and that *Bact. thompson* was accidentally found in the faeces. I cannot prove or disprove this, but the only really reliable proof of infection is the isolation of the organism from the patient, and, in the case referred to, *Bact. thompson* was obtained in large numbers on primary culture direct from the faeces by a method which has been tested out carefully and found capable of detecting typhoid organisms when these are relatively very very few.

The dysentery organisms, as I have mentioned, occasionally behave in a similar manner; instead of the usual dysentery symptoms the patient may show the symptoms of acute gastro-enteritis. This, of course, is mainly a problem which concerns the laboratory; it is the duty of the laboratory to identify any pathogenic organism that may be present, and not confine its search to members of one particular group. But it is as well to remember that all cases of continued fever need not essentially be due to a typhoid or paratyphoid infection. And as dysentery organisms may occasionally cause food-poisoning symptoms, these must be kept in mind; they are somewhat delicate organisms, rather apt to die off very quickly outside the human body, so that infected or suspected material should be examined as early as it is available if it is hoped to isolate them. I have found that the method of adding two parts of 30 per cent. glycerol in 0.6 per cent. saline to 1 part of faeces as soon as possible after they are passed helps to keep the dysentery bacteria alive when the services of a laboratory are not immediately available. As far as I know there is no good selective medium invented yet for the isolation of dysentery organisms, but my experience is that the methylene blue–eosin agar used in the examination of acid and gas producers in water is slightly superior to MacConkey's medium.

As has been indicated, the Salmonella group consists of a large number of organisms, and new types are continually being added to the list, but the commonest type in food-poisoning outbreaks is undoubtedly *Bact. typhi murium* (*B. aertrycke*). During the years 1923–33 the Ministry of Health found this organism in 110 out of 186 food-poisoning outbreaks, and in 1934 in twenty-two out of forty-three; of the forty-six outbreaks that occurred in 1935 in which the causative organisms were actually isolated twenty-nine were due to *Bact. typhi murium.* The next most frequently isolated organism is *Bact. enteritidis.* These facts are rather significant, and are of some importance when the cause of outbreaks comes under investigation.

The "Toxin" Type

In spite of exhaustive investigations into many outbreaks it has not been possible to isolate any member of the food-poisoning or dysentery groups. These outbreaks were formerly designated as ptomaine poisoning, caused by the presence in the ingested foods of products of protein decomposition. These so-called ptomaine poisons or toxic amines, however, are not produced until the food reaches an advanced stage of decomposition, and further examination showed them to be relatively non-toxic to most laboratory animals except when given in excessively large doses, far larger than are ever likely to be ingested under natural conditions. Barber in 1914 described a very interesting outbreak where a certain strain of *Staphylococcus albus* was isolated from the milk of a cow. The milk produced no ill effects if consumed immediately after its withdrawal from the udder, but on

being allowed to stand a few hours at room temperature it invariably produced the characteristic symptoms of acute gastro-enteritis. That these results were not due to any other component of the milk was proved by the fact that the same symptoms were produced in human volunteers who drank pure milk into which this particular strain of staphylococcus was introduced. The organism itself obviously did not cause the symptoms: it was necessary to allow it time—two or three hours at 28° to 30° C.—in which to produce something that would give rise to symptoms. Dr. Savage (1920) suggested later that many of the outbreaks from which food-poisoning organisms could not be isolated might be due to the ingestion, not of food-poisoning organisms themselves, but of toxic products elaborated by them, and recent work in America and in this country has furnished evidence strongly supporting this view.

The experimental evidence that staphylococcal toxin does produce gastric irritation has been provided mainly by Professor Jordan of Chicago, and consists in the production of the characteristic sickness and vomiting in human volunteers and in monkeys on the administration of quite small doses by the mouth. Savage and White (1925) paid considerable attention to this aspect of food poisoning in their extensive and valuable investigations, and while the implication of the Salmonella group in some of these "toxin" outbreaks was difficult to prove, it was nevertheless highly probable that these were the responsible organisms. Twenty-six of these "toxin" outbreaks are recorded in the Annual Report of the Chief Medical Officer for the year 1934 and forty-seven the following year.

Very little has as yet been discovered as to the nature of these toxic substances. It is not known whether they are specific bodies elaborated by the bacteria or whether they represent the breakdown products of the dead organisms. They appear to be relatively non-toxic when fed to most laboratory animals, though young rhesus monkeys are usually affected after a fairly large dose. On the whole, they are weakly antitoxinogenic. Savage and White were able to show that when toxic canned foods were emulsified and injected into animals, feebly agglutinating sera for Salmonella organisms were sometimes obtained, but, in spite of the intense symptoms these toxic foods produced, the sera of sufferers seldom revealed any appreciable developments of agglutinins. In their "Study of 100 Recent Outbreaks of Food Poisoning," they recorded that in nine of the outbreaks, while no specific organisms were isolated, the presence of Salmonella toxins in the suspected food was highly probable. Samples of blood from some of the patients showed a slight agglutination with members of the Salmonella group, usually up to a dilution of 1 in 20 or 1 in 25. Injections of watery extracts of the food into animals intraperitoneally sometimes resulted in the development of agglutinins; but here again positive agglutination was obtained only up to dilutions of about 1 in 40. The evidence, as may be gathered, is not too conclusive, but taken in conjunction with other factors it lends great support to the "toxin" theory.

Bacteria capable of giving rise to these toxic substances are not by any means confined to members of the Salmonella group; many are regarded as non-pathogenic under ordinary conditions, but with certain conditions of growth they are capable of producing these highly irritant toxic substances. *Staphylococcus aureus* is the organism most frequently associated with these "toxin" outbreaks; others are *Staphylococcus albus, B. coli, Proteus vulgaris, Proteus morgani, Streptococcus viridans,* and a micrococcus found in milk. Not all members of any particular group have the power to produce these substances—for instance, only a very few staphylococcal strains possess this particular property, and the toxin is quite distinct from the haemolytic or necrotic toxins of the staphylococcus. Up to the present we have no means, other than the direct test on human volunteers or susceptible monkeys, of determining which strains are toxinogenic and which are not. It is presumed that the bacteria multiply and elaborate these substances in the food prior to its consumption, the subsequent cooking to which the food is subjected destroying the organisms without materially affecting their toxic products. A consideration of the ubiquity of some of these bacteria, the variation in the potency of the toxins they produce, our inability at present to distinguish the poisonous from the non-poisonous strains except by test on the human subject, and our comparative ignorance of the suitable conditions for the production of toxins, makes this type of food poisoning not only difficult to investigate but also difficult to control.

The seasonal variation of food poisoning of the "infection" type is in all probability only a consequence of rise of atmospheric temperature favouring bacterial growth in infected foods, and thus encouraging the ingestion of large doses of the specific bacteria that seems to be necessary to set up the acute symptoms. The highest incidence occurs between the months of May and October, with the peak incidence in July. In the "toxin" type, too, more outbreaks tend to occur during the summer months, but these are far more evenly distributed throughout the year.

In both types the morbidity rate is high: 75 to 100 per cent. of the persons who eat the affected food are attacked, but the mortality rate is very low. The symptoms produced by the "toxin" type are similar to those of the "infection" type: the incubation period is usually shorter—half an hour to four hours, as compared with six to twenty-four hours in the latter. While they last the symptoms in the "toxin" type are more marked, but recovery is usually more rapid and the patient is well again in two or three days.

Vehicles of Infection

In Salmonella infections made-up meat dishes are the commonest vehicles of infection. In twenty-eight cases in which the causative organisms were isolated by Savage and White (1925) ten were caused by made-up meat dishes. Fresh meat, manipulated meat, milk, and milk products, especially ice-cream, are others; fish and fresh eggs, particularly ducks' eggs, have often been found to be responsible. The food associated with the "toxin" type is usually some form of canned meat or potted meat or fish, and milk products, more especially cakes and éclairs filled with cream or custard. "Corned beef" outbreaks are much less frequently met with now than formerly, the more efficient modern methods employed in the canning of this foodstuff being probably responsible for the almost complete disappearance of this one-time common source of "toxin" outbreaks. Obviously any food may act as a vehicle of infection, as, for instance, a dried milk powder from which *Bact. typhi murium* was isolated by Jones and Wright (1936).

Those familiar with the investigation of food-poisoning outbreaks will know that for various reasons it is not always an easy matter to isolate the offending organism or to prove the presence of a specific toxin; much less easy is it to trace the mode of infection of the food by

the organism. The common ways in which food may be infected are: (1) Infected animals may be used for food—for example, meat (beef and pork), ducks or their eggs. (2) Infected animals may excrete specific organisms to contaminate food—for example, rats and mice, bovines. (3) Human carriers may contaminate the food by handling.

There seems to be little doubt that animals, especially cattle and pigs, may suffer from diseases caused by the Salmonella organisms. The disease in animals is usually of an acute and often fatal type, but the carcass need not essentially be noticeably unhealthy. A case is reported in the annual report of the Ministry of Health, 1935, in which beef from the carcass of an animal almost certainly suffering from a Salmonella .septicaemia was responsible for 174 cases, with eight deaths, in Lancashire. The flesh appeared normal, but *Bact. typhi murium* was isolated from all the parts of it examined. In most cases of food poisoning due to the consumption of meat from an infected animal it has been found that the animal has been "emergency slaughtered." Meat from such a source must be eaten in an uncooked or imperfectly cooked condition, as sausages or pressed beef, to cause ill effects. In this country such occurrences must be extremely rare, but in Germany, where more raw meat is eaten, they afford a frequent source of human infection. Within recent years ducks' eggs have on many occasions been responsible for food poisoning: one such outbreak investigated by Dr. Scott of the Ministry occurred in this county in 1933, and an outbreak at Preston in 1934 involved 250 persons who had consumed ice-cream in the preparation of which, it was alleged, the mixture containing ducks' eggs was insufficiently cooked. Infection of ducks by *Bact. typhi murium* and *Bact. enteritidis* is not uncommon; hens are less frequently infected with these organisms.

The contamination of foodstuffs by the excreta of infected animals is probably of more frequent occurrence than is generally supposed. McAllan and Howie (1931) record an outbreak of Salmonella infection in which milk was contaminated from the faeces of an infected cow; but rats and mice, in my opinion, are commoner offenders in this respect. Our rodent population is a fairly large one, and both rats and mice suffer naturally from infection with *Bact. typhi murium* and *Bact. enteritidis*, and may excrete the organisms in their urine and faeces for considerable periods. Food exposed in insanitary premises invariably attract these animals, and infection is thereby easily transferred to human beings. In the case of the infected dried milk referred to previously, the food used for a child who subsequently died of an *aertrycke* infection was kept in an uncovered container. Mouse faeces were found in the food, and from these pellets as well as from the powder *Bact. typhi murium* was isolated. From the intestines of mice caught in the house within the next few days the same organism was cultured. In an investigation commenced some time ago about 250 rats and mice were examined, and cultures of *Bact. typhi murium* or *Bact. enteritidis* were obtained in from 10 to 12 per cent. of them, in some cases from the intestine, in others from the intestine and spleen.

The Carrier

With regard to the human carrier as a source of infection, it is generally considered that he plays but an insignificant part. Authenticated cases are on record, but the proved cases are relatively few. The probability of the intermittent carrier state makes it still more difficult to ascertain the true condition of affairs. The methods employed in the examination for carriers need to be more exacting than in the examination of the frank acute case. Agglutination tests are of little help; they may narrow the field of "suspects," but even in cases of known infection, proved by the actual isolation of the organism, the agglutinin response may be very poor, and agglutinins may be present to some extent in the blood of normal persons. As I have said, the isolation of the specific organism is the only proof of infection, and obviously in the case of a chronic carrier who is excreting but few pathogenic bacteria as compared with non-pathogenic ones, it is only to be expected that such carriers are easily missed unless special methods are employed. The frequency with which I have accidentally found Salmonella organisms suggests that carriers may be more common than is generally supposed. Two of these cases were particularly interesting. One was that of a missionary who had been invalided home from India with typhoid fever. He walked into the laboratory one morning with a specimen of faeces; he wished to know whether or not he was a typhoid carrier. After a few formalities the specimen was accepted. No *B. typhosus* was found in the specimen but a large number of *Bact. typhi murium*, and the same results were obtained from another specimen taken a week or so later. The other case concerned a possible typhoid carrier in a family of six persons, one of whom had developed typhoid fever, the organisms having been found in her faeces. No typhoid organisms were recovered from any of the other five persons, but a good growth of *B. aertrycke* was obtained from the faeces of the father, who was quite fit and apparently healthy and could not remember ever having been ill.

And here I must digress a little again to mention the methods employed for the isolation of these pathogenic organisms: the matter has an important bearing on the problem of human carriers and also on the prevalence of these food-poisoning organisms among animals. In 1936 I published a paper in which a comparison is given of results obtained with special selective media and with MacConkey's medium—the medium still used in many laboratories. I shall not go into the details of the different media; it will be sufficient to say that in a very careful investigation of a large number of specimens, both faeces and urines, 34.7 per cent. of the specimens were positive for organisms of the typhoid food-poisoning group on the particular selective media used as compared with 14.5 per cent. positive with MacConkey's medium. At the time when these special media were being tested out many of the cases to which I have referred came into the laboratory for investigation, and all specimens were examined on both media. In the fatal case of *B. aertrycke* infection due to the contamination of the dried milk by mouse faeces, *B. aertrycke* was isolated on both media from the faeces of the patient and from post-mortem material, but only on the selective media was the organism recovered from the infected food and from the mice themselves. Similarly for the two *aertrycke* carriers and the *senftenberg*, var. Newcastle, case: in all these the pathogenic organism could only be recovered on the selective media. I would mention also that convalescents became negative on MacConkey's medium very much earlier than they did when the faeces and urines were examined on these special media. I had occasion some time ago to investigate a small outbreak of dysentery in a children's hospital. Among the specimens examined were eleven mice caught on the premises. No food-poisoning or dysentery organisms were isolated from

these, but Morgan's bacillus No. 1 was recovered from the intestine of two mice. The part these bacteria play in summer diarrhoea of infants is not yet entirely clear, but there is no doubt that they are the organisms most frequently isolated from these cases. It thus appears to me that the dissemination of pathogenic bacteria by human convalescents and carriers and by rodents can very easily occur, and unless special methods for the examination of these are employed many sources of infection are bound to be missed.

The mode of infection of food by organisms giving rise to the "toxin" type of food poisoning is not so difficult to determine. As has been indicated, many organisms of different types have now been identified with outbreaks; most of them are common organisms found almost anywhere, but their presence in various foodstuffs has hitherto been regarded as of no significance. In the light of our present knowledge, however, in cases where these occur in any suspected food and in which no organisms of the Salmonella group can be isolated it is as well to bear in mind their possible association with the outbreak.

Botulism

Botulism is a disease which is fortunately rare in this country, and while very few of us have had the opportunity of investigating an outbreak of this disease, it is necessary to keep in mind its existence. My experience is confined to the examination of nut-meat brawn at the time of the occurrence of the few cases in London in 1935; neither *Cl. botulinum* nor its toxin was detected in the specimens examined.

The causative organism is a normal inhabitant of the surface layers of the soil, from which it may easily gain access to various types of food. There is no evidence that it is a normal intestinal inhabitant of man or of animals. *Cl. botulinum* is an anaerobic sporing organism which is incapable of growth in the animal body and giving rise to infection, but under suitable conditions it produces a very potent toxin. We do not know all the factors which determine the growth and toxin production of the organism. The spores are fairly resistant to heat and may withstand boiling for from half an hour to twenty-two hours: the potted-duck paste responsible for the Loch Maree cases in 1922 had been heated on three occasions, at one stage to a temperature of 115° C. for two hours. Media which are acid do not encourage growth, so that canned acid fruits are not likely to give rise to botulism. Vegetables and other products that are not acid and are preserved in air-tight containers which are not or cannot be adequately sterilized by heat —for example, glass containers—are possible sources of danger. The toxin is destroyed by such heat as is ordinarily applied in cooking, so that cooked food eaten within a short time of heating, and also fresh foods, are safe.

In Europe most of the cases of botulism have been caused by preserved meat or potted paste, whilst in America the contaminated foods have been mainly canned fruits and vegetables. Investigations into the different outbreaks have indicated that home-canned food is decidedly more dangerous than commercially prepared food.

Food infected with organisms of the Salmonella group usually appears quite normal: there need be no great change in colour and no detectable change in smell or taste. But in the case of botulism the preserved foods are frequently noticeably spoiled, the cans are usually "blown," the food shows evidence of decomposition in varying degree, and it has a more or less rancid odour.

The methods of investigating outbreaks of food poisoning are not within the scope of this paper, and are fully described in a Memorandum by the Ministry of Health (Memo 188/Med. 1935).

Commentary

From what has been said it is obvious that there is still much to learn about bacterial food poisoning in human beings. The paths of infection of food, the part played by animals in transmitting infection, the conditions under which some normally harmless bacteria as well as natural pathogens are able to elaborate substances highly irritant to the human intestine, and the nature of these toxic substances are matters on which our knowledge is still very deficient and imperfect. The problems met with in investigating even the smaller outbreaks are often numerous and complicated, and entail an enormous amount of work that can only be successfully attempted in a well-equipped laboratory. Fortunately the assistance of the Ministry's laboratory is available for the examination by any local authority of specimens from suspected food poisoning.

Comparatively few outbreaks are investigated completely: this is inevitable in some cases, but an outbreak ended is not a problem solved. Very rarely are negative findings published: this is unfortunate, because a clearer understanding of the factors involved in bacterial food poisoning will more easily be acquired only by a comparison and correlation of all findings, whether these be positive or negative, in the different types of outbreaks.

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A conference of the Tuberculosis Association will be held in Paris from October 14 to 17 under the presidency of the Ministre de la Santé Publique et de l'Education Physique. The party will leave Victoria Station, London, by the 9 a.m. train on Thursday, October 14, and will arrive in Paris at 3.50 p.m. At 5 p.m. there will be a reception at the Hotel Lutécia by the Comité National de Defense contre la Tuberculose, followed by a dinner under the presidency of the Minister of Public Health. On October 15 visits will be paid to the Hospital Laennec, the Dispensary Léon Bourgeois, the Pasteur Institute, and to the dispensary, crèche, and open-air school at Suresnes. Luncheon will be given by the Municipality of Suresnes. On October 16 there will be visits to the offices of the Assurances Sociales and to l'École de Puériculture, and luncheon will be arranged by the Office of Public Health of the Seine at the Sanatorium of Saint Martin du Tertre. The party will leave Paris at 7.55 p.m., and will arrive in London on the morning of Sunday, October 17. Members of the Tuberculosis Association who wish to attend the conference are requested to inform the honorary secretary, Dr. Frederick Heaf, at 26, Portland Place, W.1, by July 31. All tickets will be issued by Thos. Cook and Son, Ltd., Berkeley Street, W.1, to whom remittances should be made payable and sent direct. Correspondence with Messrs. Cook should be marked B.H.43. Further information can be obtained from the honorary secretary.

SODIUM CHLORIDE CONTENT OF CEREBRO-SPINAL FLUID IN TUBERCULOUS MENINGITIS

BY

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The normal sodium chloride content of the cerebro-spinal fluid is usually taken as 700 to 750 mg. per 100 c.cm., and diminution is practically a constant feature of all inflammatory conditions of the cerebro-spinal nervous system. Although the extent of this diminution is variable, all observers seem to be agreed that it is greatest in tuberculous meningitis. Nobécourt and Voisin (1903) directed attention to this low chloride content in tuberculous meningitis, and Mestrezat (1912) emphasized its diagnostic significance. More recently Fowweather (1930), studying cases of tuberculous meningitis, showed that there was a rapid fall in the cerebro-spinal fluid chlorides concomitant with the progress of the illness. Very divergent figures have been recorded by various investigators, as may be seen from the following table:

	Mg. per 100 c.cm.
Mestrezat (1912)	500–600
Fowweather (1930)	590 and over
Eskuchen (1924)	500–600
Fremont-Smith (1925)	Under 600
Wilcox and Lyttle (1925)	513–690
Neale and Esslemont (1928)	489–763
Benoliel (1925)	765–936
Riser (1929)	500–675
Lattes (1929)	570–640
Fontecilla and Sépulveda (1921)	580
Greenfield and Carmichael (1926)	500–600
Nowicka and Mestrezat (1924)	590
A. Prunell (1935)	504–678

Such a wide variation in figures seems to call for some explanation or reinvestigation.

In the course of routine work in this department 700 mg. per 100 c.cm. was obtained in one meningitic fluid containing tubercle bacilli, but on investigation this high figure was found to be due to the nurse having sterilized the lumbar puncture needle by boiling in saline. The examination was repeated on the following day with fluid withdrawn by a needle which had been sterilized in boiling distilled water, and the sodium chloride content was found to be only 510 mg. per 100 c.cm. On another occasion a high chloride figure resulted from the lumbar puncture needle having been sterilized in the autoclave, the water of which had not been changed for a long time. In other cases the cotton-wool test tube plugs and filter papers used in the test have been found responsible for a fallacious high chloride figure.

In estimating the sodium chloride content of the cerebro-spinal fluid the greatest care is essential to ensure that there is absolutely no possibility of the slightest trace of extraneous saline reaching the fluid from any source whatsoever—needle, test tube, etc., or apparatus used in the test.

The Investigation

With these facts in mind, and paying special attention to technique, the chloride content of the cerebro-spinal fluid of 126 patients was investigated. Of these, eighty-four suffered from tuberculous meningitis, all excepting two showing tubercle bacilli in the fluid, and forty-two were non-tuberculous cases. These latter served as controls and were made up of: (*a*) twenty-six cases of non-tuberculous meningitis—namely, meningococcal meningitis (eleven cases), pneumococcal meningitis (six cases), streptococcal meningitis (three cases), aseptic meningitis (one case), syphilitic meningitis (one case), influenzal meningitis (four cases); (*b*) ten cases of non-tuberculous lesions of the nervous system other than meningitis—namely, poliomyelitis (two cases), polio-encephalitis (two cases), juvenile dementia paralytica (one case), mental defective (post-meningitic) (one case), infantile convulsions (one case), epilepsy (one case), cerebral softening (one case), paraplegia (one case); (*c*) six normal healthy individuals.

Results

NON-TUBERCULOUS CONTROL FLUIDS—CHLORIDE CONTENT

The fluids from the six normal healthy individuals gave the following figures (mg. per 100 c.cm.): 700, 720, 714, 740, 700—that is, an average sodium chloride content of 715.66 mg. (Four showed no cells, one showed 3 lymphocytes per c.mm., and another 2 lymphocytes.)

The fluids from the ten cases of non-tuberculous lesions of the nervous system—other than meningitis—gave the following figures (mg. per 100 c.cm.): 620, 670, 600, 650, 620, 650, 600, 640, 680, 600—that is, an average sodium chloride content of 633 mg. (The cell content varied from 5 to 920 per c.mm., and 100 per cent. lymphocytes were present in all cases except two—namely, the two cases of polio-encephalitis, which showed 80 per cent. and 85 per cent. lymphocytes.)

The fluids from the twenty-six non-tuberculous meningitis cases gave the following figures (mg. per 100 c.cm.): 640, 670, 640, 644, 620, 600, 600, 680, 640, 650, 640, 690, 640, 600, 640, 600, 640, 620, 660, 620, 620, 640, 620, 580, 660, 660—that is, an average sodium chloride content of 632.84 mg.

The case of syphilitic meningitis showed 33 cells per c.mm. (100 per cent. lymphocytes), and the case of aseptic meningitis 2,450 cells per c.mm., 80 per cent. being lymphocytes. In all the others polymorphs predominated, the average percentage being 87.4. The lowest percentage of polymorphs in any case was 60; the highest was 98. The total cell count varied between 54 and 6,000 per c.mm.

TUBERCULOUS FLUIDS—CHLORIDE CONTENT

Of the eighty-four cases of tuberculous meningitis only two had a chloride content exceeding 550 mg. per 100 c.cm. The latter were the two cases which failed to show tubercle bacilli in the fluid as obtained by lumbar puncture, and they call for special comment. One was that of a man aged 45, the other that of a boy aged 11. Both patients suffered from miliary tuberculosis, particularly in the lungs, and eventually developed tuberculous meningitis and died. The findings were confirmed post mortem, and it is of special interest to note that in both cases thickening of the meninges at the base of the brain had given rise to internal hydrocephalus and there was no evidence of extension to the spinal meninges. The complete examination of their fluids were as follows:

Case 1 (man aged 45).—The fluid, bright and clear and of light amber colour, was examined two days before death. The cell count showed 3 per c.mm., all lymphocytes, and the globulin was ++. The sugar content was 35 mg., the protein 200 mg., and the chlorides 640 mg. per 100 c.cm. No organisms seen in stained films.

Case 2 (boy aged 11).—There were two examinations. In the first, on October 10, 1935, the fluid was bright and clear, and light amber in colour. The cell count gave 96 per c.mm., 65 per cent. being lymphocytes. There was no globulin. The sugar content was 45 mg. per 100 c.cm., the proteins 56 mg., and the chlorides 620 mg. A stained film showed no

organisms. The second examination, on October 19, revealed no change in the appearance of the cerebro-spinal fluid, but the cells had fallen to 22 per c.mm., 90 per cent. being lymphocytes. There was no globulin. The sugar content was 40 mg., the proteins 62 mg., and the chlorides 600 mg. per 100 c.cm.. No organisms were observed in a stained film The patient died on October 24.

Chemical examination of the cerebro-spinal fluids containing tubercle bacilli in the eighty-two cases of tuberculous meningitis revealed a chloride content averaging 510.24 mg. per 100 c.cm. The highest chloride content in any field was 550 mg. and the lowest 420 mg. per 100 c.cm. The cell content varied within wide limits—from 20 per c.mm. (100 per cent. lymphocytes) in a bright clear fluid free from clot to 1,952 per c.mm. (96 per cent. lymphocytes) in a cloudy fluid showing a clot of fibrin.

Comments

A differential count of the cerebro-spinal fluid occupies about fifteen minutes and has a certain diagnostic value. In tuberculous meningitis lymphocytes predominate; the lowest percentage in any fluid of the present series (eighty-four cases) was 58, and the average 92. But a high percentage of lymphocytes may be found also in syphilitic meningitis, aseptic meningitis, and a number of lesions of the nervous system other than meningitis, and so is not pathognomonic. In all other forms of meningitis, however, polymorphs greatly predominate; in the twenty-six cases referred to above the lowest percentage of polymorphs was 60 and the highest 98, and the average percentage was 87.4.

Microscopical examination of the centrifuged deposit from a fluid with a chloride content not exceeding 550 mg. per 100 c.cm., if sufficiently prolonged, will always reveal the presence of tubercle bacilli. Only about 2 per cent. of cases of tuberculous meningitis may have a high chloride content (over 600 mg. per 100 c.cm.), and these will fail to show organisms even after two and a quarter hours' search. The finding of tubercle bacilli in the cerebro-spinal fluid of any case of meningitis is of course pathognomonic, but the time necessary for success is often very long, and so a negative result is frequently reported.

Centrifugalization of the fluid and making and staining a film occupy fifteen to twenty-five minutes or more, and the subsequent microscopical examination may entail a prolonged search. In the present series of eighty-four cases the organism was demonstrated in eighty-two (approximately 98 per cent.)—a high proportion of positives—but the time expended on the microscopical examination varied from two minutes to two and a quarter hours. As a rule twenty-five to thirty minutes' searching was necessary, but a longer time was often required, and in at least five cases the search had to be prolonged to two and a quarter hours. Few workers can afford sufficient time for success.

The estimation of the sodium chloride content of the cerebro-spinal fluid takes only fifteen minutes. In eighty-two of the eighty-four cases investigated—that is, approximately 98 per cent.—the sodium chloride content was found greatly reduced, averaging 510.24 mg. per 100 c.cm. The lowest and highest limits were 420 mg. and 550 mg. respectively. In none of the forty-two controls did the sodium chloride content fall below 580 mg. per 100 c.cm., the vast majority having over 600 mg. Technique must be accurate, however, and all precautions must be taken to avoid contamination with extraneous chlorides. With this proviso it may be said that a sodium chloride content of 550 mg. per 100 c.cm. and under is found only in tuberculous meningitis, and is practically pathognomonic of the disease.

Method of Estimating the Sodium Chloride Content

The method adopted in estimating the sodium chloride content of the cerebro-spinal fluid is a modification of that described by Whitehorn (1921). The following is the apparatus required, all of which must be chemically clean:

Two 5 c.cm. microburettes calibrated in 0.02 c.cm. ; Grade B, N.P.L.
One 10 c.cm. bulb pipette ; Grade B, N.P.L.
Two 2 c.cm. bulb pipettes; Grade B, N.P.L.
Two 1 c.cm. bulb pipettes; Grade B, N.P.L.
One 10 c.cm. graduated pipette; Grade B, N.P.L.
One 50 c.cm. conical flask (pyrex).
One 5 c.cm. measuring cylinder.
One glass funnel, ribbed, 2 inches diameter.
Two test tubes.
One box Whatman's filter papers No. 1, 11 cm. diameter.

The reagents necessary are:

Powdered iron alum, chlorine-free.
Concentrated nitric acid, chlorine-free.
2/3 normal sulphuric acid.
10 per cent. aqueous solution of sodium tungstate.
Distilled water prepared in a pyrex all-glass still.
Standard solution of sodium chloride: 1 c.cm. = 2 mg. NaCl.
Standard solution of silver nitrate: 1 c.cm. = 2 mg. NaCl.
Standard solution of potassium thiocyanate: 1 c.cm. = 2 mg. NaCl.

These three standard solutions are prepared as follows.

Preparation and Standardization of Solutions

Standard Solution of Sodium Chloride.—A stock solution is first prepared by dissolving 10 grammes pure dry sodium chloride in 500 c.cm. of distilled water. Its strength, therefore, is 1 c.cm. = 20 mg. sodium chloride. The standard solution is prepared, as required, by diluting the stock solution with distilled water ten times, so that 1 c.cm. = 2 mg. sodium chloride.

Standard Solution of Silver Nitrate.—Dissolve 5.81 grammes of pure silver nitrate in distilled water and make up the volume to 1,000 c.cm. (1 c.cm. = 2 mg. sodium chloride). Store in amber bottle.

Standard Solution of Potassium Thiocyanate.—Dissolve about 6 grammes of pure potassium thiocyanate in 1,000 c.cm. of distilled water, mix thoroughly, and standardize as follows:

Measure 10 c.cm. of distilled water into a 50 c.cm. flask and add 5 c.cm. of standard silver nitrate solution from a 5 c.cm. microburette and 3 c.cm. of concentrated nitric acid (chlorine-free). Shake, cool under water-tap, and allow to stand for two minutes. Then add about 0.3 gramme of powdered iron alum. Titrate with the potassium thiocyanate solution from a 5 c.cm. microburette until the last trace of silver has been precipitated. This is indicated by the development of a pink colour due to the formation of ferric thiocyanate. Adjust the concentration of the potassium thiocyanate solution until 5 c.cm. corresponds with 5 c.cm. of silver nitrate solution.

The standard solutions having thus been prepared the strength of the standard solution of silver nitrate, in the interests of accuracy, should now be checked as follows:

Measure 5 c.cm. of distilled water into a 50 c.cm. flask and add 5 c.cm. standard sodium chloride solution, 10 c.cm. standard silver nitrate solution, and 3 c.cm. concentrated nitric acid. Shake, cool under water-tap, allow to stand for two minutes, and then add about 0.3 gramme iron alum. (The 5 c.cm. sodium chloride will combine with the 5 c.cm. of silver nitrate and so leave 5 c.cm. of silver nitrate to be titrated.)

Titrate with the potassium thiocyanate standard solution until the definite pink colour first appears. This should require 5 c.cm. potassium thiocyanate if the strength of the silver nitrate solution is correct.

TECHNIQUE OF TEST

(All apparatus must be chemically clean.) The lumbar puncture needle must be sterilized in boiling distilled water, alcohol, or by dry heat. No saline or tap-water should be used. The test tube for collecting the cerebro-spinal fluid must be chemically clean, sterilized by dry heat, and closed with a sterile cork covered with tin-foil (not cotton-wool plug). At least 10 c.cm. of cerebro-spinal fluid is required. The following is the procedure:

(i) Observe appearance of fluid, then shake and pour about 1 c.cm. into a small test tube for estimation of white-cell content.

(ii) Centrifuge remainder for twenty minutes at high speed in a conically bottomed centrifuge tube.

(iii) Remove supernatant fluid—without interfering with any clot present—using a fine-pointed capillary pipette and rubber teat. The top end of the pipette should be guarded with a small plug of cotton-wool which has been previously washed in distilled water, dried, and sterilized. As much supernatant fluid as possible is transferred to a chemically cleaned sterile test tube.

(iv) All the deposit is then transferred by means of the capillary pipette to the centre of a microscope slide and, without having been spread, the drop is dried by gently heating. The conical part of the centrifuge tube is then washed with two or three drops of the supernatant fluid and the washing transferred to the dried drop on the slide. Without spreading, the slide is then dried for ten minutes in the 55° C. incubator, and in this way a highly concentrated film is obtained. Afterwards it is stained in the usual manner by Ziehl-Neelsen's method.

(v) Precipitate the proteins from the supernatant cerebro-spinal fluid obtained in (iii) above by Folin and Wu's method, as follows: Measure 16 c.cm. distilled water into a test tube and add 2 c.cm. of the cerebro-spinal fluid, 1 c.cm. sodium tungstate, and 1 c.cm. 2/3 normal sulphuric acid; mix gently, allow to stand for five minutes, then filter into another test tube, using a funnel and Whatman's No. 1 filter paper. Estimate the sodium chloride content of the filtrate as follows:

(vi) With 10 c.cm. bulb pipette transfer 10 c.cm. of the filtrate to a 50 c.cm. conical flask and add 5 c.cm. standard silver nitrate solution (using burette) and 3 c.cm. concentrated nitric acid.

Shake, cool under water-tap, allow to stand for two minutes. Add about 0.3 gramme iron alum, then titrate with standard potassium thiocyanate solution from 5 c.cm. burette until definite pink colour is obtained.

The formula upon which the calculation is made is:

(5 c.cm. minus volume of potassium thiocyanate used) × 200 = No. of mg. sodium chloride in 100 c.cm. cerebro-spinal fluid.

Summary

1. Diminution of the sodium chloride content of the cerebro-spinal fluid—practically a constant feature of all inflammatory conditions of the cerebro-spinal nervous system—is greatest in tuberculous meningitis.

2. As different observers have given very divergent figures for this diminution a reinvestigation of the question has been undertaken and the results are here set out.

3. The chloride content of the cerebro-spinal fluid of 126 patients was investigated. Eighty-four suffered from tuberculous meningitis, and forty-two were non-tuberculous and served as controls. None of the controls showed a sodium chloride content below 580 mg. per 100 c.cm., the vast majority having over 600 mg.

4. A sodium chloride content of 550 mg. per 100 c.cm. and under was found only in tuberculous meningitis, and may be considered practically pathognomonic of this disease. Microscopical examination of such a fluid, if sufficiently prolonged, will always reveal tubercle bacilli.

5. Only about 2 per cent. of cases of tuberculous meningitis may show a high chloride content (over 600 mg. per 100 c.cm.), and these will fail to reveal organisms even after two and a quarters hours' search.

6. The technique of the test—a modification of that described by Whitehorn—is given in detail, and its performance occupies fifteen minutes. It is of the utmost importance to exclude any extraneous source of chloride contamination, and accurate technique is essential.

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The folowing medical promotions in and appointments to the Venerable Order of the Hospital of St. John of Jerusalem are announced in the *London Gazette* of June 22. As Knights: N. Corbet Fletcher, M.B., Lieut.-Colonel Sir James S. Elliott, M.D., G. Sprott, M.D.; as Commanders: Lieut.-Colonel H. Ross, C.I.E., O.B.E., M.B., F.R.C.S.I., A. B. Cardew, *M.C.*, M.B., F.R.C.S.Ed., N. McDougall, M.B., T. H. Goddard, M.B., Sir Henry L. Ferguson, C.M.G., M.D., E. Pratt, M.D., Lieut.-Colonel J. P. S. Ward, M.R.C.S., L.R.C.P., Major E. W. Herrington, T.D., L.R.C.P., M.R.C.S., E. McIntyre, M.R.C.S., L.R.C.P., Captain A. C. W. Knox, *M.C.*, M.B., C. E. Salt, M.B., Major J. R. Thomas, M.B., W. Young, M.D., Lieut.-Colonel W. R. Battye, D.S.O., M.B., F.R.C.S., Surgeon Rear-Admiral P. T. Nicholls, C.B., M.R.C.S., L.R.C.P.; as Officers: Major A. Tennyson-Smith, M.D., C. Gardiner-Hill, M.B., Colonel W. B. Purdon, D.S.O., O.B.E., R.A.M.C., M. H. Watt, C.B.E., M.D., K. H. Trebilcock, M.D., J. B. Thom, M.D., Colonel F. A. Maguire, C.M.G., D.S.O., V.D., M.D., P. Testa, M.D., L. H. Gill, L.R.C.P. and S., J. A. Durante, M.R.C.S., L.R.C.P., Captain S. B. Turner, M.R.C.S., L.R.C.P., Colonel P. H. Mitchiner, T.D., M.D., C. E. C. Wilson, M.B., S. W. Fisher, M.D.; as Serving Brothers: H. A. Madwar, L.R.C.P. and S., E. S. Toogood, M.R.C.S., L.R.C.P., Captain C. G. Kemp, *M.C.*, M.D., A. Juett, B.M., C. H. McComas, M.D., J. Mackenzie, M.D., S. Prior, M.B., R. R. Garrett, M.R.C.S., L.R.C.P., Captain L. E. Sutcliffe, M.B., Surgeon Captain R. L. Casolani, M.D., J. P. Prell, M.R.C.S., L.R.C.P., A. M. Robertson, M.B., T. Williams, M.R.C.S., L.R.C.P., A. J. Crawford, M.D., F.R.C.S., R. S. J. Fitzgerald, F.R.C.S.

EFFECT OF HEAT AND ULTRA-VIOLET RADIATION ON ISO-AGGLUTININS IN DRIED BLOOD STAINS

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The primary object of the present study was to see to what extent adverse conditions would affect the grouping of bloods by means of dried stains kept in circumstances similar to those likely to be met with in ordinary medico-legal practice. For this we chose to deal with the iso-agglutinins as being more labile than the agglutinogens, and to expose the stains to dry heat and to ultra-violet radiation—these being factors likely to occur in practice, particularly in the Tropics—the influence of which on the stain might be important.

Method

Blood was collected from eighteen volunteers of both sexes and allowed to dry at room temperature on glass slides, on scraps of leather, and soaked up in ordinary plain surgical gauze. The material was kept in unsealed envelopes lying on the laboratory bench, conditions being thus pretty much what might obtain in the case of a stain met with in practical medico-legal work. The agglutinins of the stains were tested against cells of Type A, Type B, and two specimens of Type O, designated O1 and O2 respectively. The cells were collected in citrated saline, washed once, and suspended in 0.85 per cent. saline in a 3 per cent. suspension. The bulk of the tests were carried out on blood dried on slides, but no differences were detected in stains on leather or gauze. In each case a fragment of stain was detached and placed on a slide, a small quantity of dilute cell suspension added, and a cover-glass applied. After five minutes the cover was very gently agitated and the slide examined for agglutination, examination being again made at the end of a further five minutes. Brisk stirring is to be avoided, as it greatly encourages rouleau formation. The blood group of the donor had been determined at the time of collection of the blood stain by the usual slide method.

Results

All specimens were examined ten days after collection and without any further treatment. In each case the group was determined without difficulty and correctly, the worker reading the result being of course kept in ignorance of the already determined group. The results are tabulated in Table I.

One batch of six stains was heated to 64° C. for one hour in an electric drying oven and then submitted to grouping as before. Little, if any, diminution in agglutinin content was noticed, no difficulty being experienced in obtaining a correct group in each case at the first attempt.

Portions of all stains were then heated to 100° C. for one hour in the drying oven and typing done as before. The results are shown in Table III.

A further typing was carried out on a group of stains similarly treated six days after, the results of which experiment are listed in Table IV.

Difficulty was experienced in diagnosing the group of some of the stains, mainly in those cases where too brisk stirring had been employed. In all cases, so far as could be judged, the strength of the agglutinins was considerably diminished, and larger portions of the stains had to be taken to get agglutination.

Portions of seven stains (two from each of Groups A, B, and O, and one AB specimen) were placed in small glass staining blocks and exposed for one hour to ultra-violet light at fifteen inches from a Hanovia quartz analytical lamp. Care was taken to see that the portions of dried clot did not overlap and screen

TABLE I.—*Stains Untreated*

Group already Determined	No. of Specimen	Agglutination of Cells				Group Diagnosed
		A	B	O1	O2	
A	1	−	+	−	−	A
A	2	−	+	−	−	A
O	3	+	+	−	−	O
O	4	+	+	−	−	O
B	5	+	−	−	−	B
A	6	−	+	−	−	A
O	17	+	+	−	−	O
O	10	+	+	−	−	O
A	13	−	+	−	−	A
B	12	+	−	−	−	B
A	9	−	+	−	−	A
O	7	+	+	−	−	O
O	11	+	+	−	−	O
A	16	−	+	−	−	A
O	14	+	+	−	−	O
A	15	−	+	−	−	A
AB	18	−	−	−	−	AB
A	8	−	+	−	−	A

TABLE II.—*Stains Heated for One Hour at 64° C.*

Group already Determined	No. of Specimen	Agglutination of Cells				Group Diagnosed
		A	B	O1	O2	
A	1	−	+	−	−(R)	A
A	2	−	+	−	−(R)	A
O	3	+	+	−(R)	−(R)	O
O	4	+	+	−	−	O
B		+	−	−	−	B
A	6	−	+	−	−	A

(R) indicates roleau formation

TABLE III.—*Stains Heated for One Hour at 100° C.*

Group already Determined	No. of Specimen	Agglutination of Cells				Group Diagnosed
		A	B	O1	O2	
O	3	+	+	−	−	O
O	11	+	+	−	−	O
O	10	+	+	−	−(R)	O
O	14	+(R)	+	−(R)	−	?O
O	17	+	+	−	−	O
A	6	−	+	−	−	A
A	13	−	−(R)	−	−	?AB
A	9	−	+	−	−	A
O	7	+	+	−	−(R)	O
AB	18	−(R)	−(R)	−	−	?AB
B	12	+(R)	−(R)	−	−	?B
A	8	−	+	−	−	A
A	15	−(R)	+	−	−	?A
A	16	−	−	−	−	AB
A	1	−(R)	+	−	−	?A
B	5	+	−	−	−	B
A	2	−(R)	+	−	−	?A
O	4	+	+	−	−	O

(R) indicates rouleau formation.

TABLE IV.—*Stains Heated for One Hour at 100° C.; Second Batch*

Group already Determined	No. of Specimens	Agglutination of Cells				Group Diagnosed
		A	B	O1	O2	
O	10	+	+	−	−	O
AB	18	−	−	−	−(R)	AB
O	7	+	−	−	−	B
A	16	−	+	−	−	A
A	8	−	+	−	−	A
A	15	−	+	−	−	A
O	4	+	+	−	−	O
A	13	−	−	−	−	AB
O	17	+	+	−	−	O
A	1	−	+	−	−(R)	A

(R) indicates roleau formation.

each other from the rays. The stains were afterwards grouped, and so far as could be observed the radiation produced no effect. A further experiment was therefore carried out. Portions of all stains were taken three weeks after bleeding and exposed in a similar fashion for three hours without apparent effect.

The effect of heat combined with ultra-violet light was investigated in a further group of six stains by exposing for one hour at fifteen inches from the quartz lamp stains which had previously been subjected to dry heat for one hour at 100° C. The results are contained in Table VI.

TABLE V.—*Stains Exposed Three Hours to Ultra-violet Light*

Group already Determined	No. of Specimens	Agglutination of Cells				Group Diagnosed
		A	B	O1	O2	
O	11	+	+	−	−	O
O	3	+	+	−	−	O
A	16	−	+	−	−	A
B	12	+	−	−	−	B
B	5	+	−	−	−	B
A	8	−	+	−	−	A
A	2	−	+	−	−	A
O	17	+	+	−	−	O
A	6	−	+	−	−	A
O	10	+	+	−	−	O
O	7	+	+	−	−	O
A	1	−	+	−	−	A
O	14	+	+	−	−	O
AB	18	−	−	−	−	AB
A	15	−	+	−	−	A
A	13	−	+	−	−	A
A	9	−	+	−	−	A
O	4	+	+	−	−	O

TABLE VI.—*Stains Heated One Hour at 100° C. and then Exposed One Hour to Ultra-violet Light*

Group already Determined	No. of Specimens	Agglutination of Cells				Group Diagnosed
		A	B	O1	O2	
O	10	+	+	−	−	O
AB	18	−	−	−	−	AB
O	3	+	+	−	−	O
A	1	−	+	−	−	A
A	2	?+	+	−	−	?O
O	7	+	+	−	−	O

It will be seen that in most cases radiation has produced no further effect on the agglutination except in Specimen 2, which shows a doubtful positive agglutination of A cells. The main thing to be noticed is the absence of any trouble from rouleau formation.

Discussion

It is evident that drying at room temperature and storage for ten days in ordinary conditions does not seriously affect the readiness with which stains can be grouped by their agglutinins. These also appear to resist dry heat for one hour at 64° C. without serious impairment, but a similar exposure to 100° C. does cause some loss of power. A further point is the apparent increase of the factors tending to regular rouleau formation. This may be apparent only, and due entirely to the extra concentration necessary to produce agglutination; but our feeling is that this is not the whole explanation, since we noticed the appearance of this phenomenon when the concentration of the stain was not greatly increased. It is curious also that subsequent irradiation seems to diminish rouleau formation almost to vanishing-point. To investigate these facts further is not possible by the relatively crude methods we have used in the present series of experiments.

Conclusions

1. In agreement with generally accepted views no difficulty has been experienced in accurately diagnosing the group of a blood by the agglutinins present in a dried stain. Moreover, no difficulty ensues after exposing the stains to dry heat at 64° C.

2. Dry heat at 100° C. diminishes the strength of the agglutinin factor to a considerable extent, but does not usually abolish it completely; and this temperature seems to have some influence on the appearance of regular rouleau formation.

3. Ultra-violet radiation under the above-described conditions produces no obvious effect on the agglutinins. On the other hand, it does seem to have a certain influence in diminishing the formation of regular rouleaux.

4. It seems unlikely that ordinary blood stains would lose much of their agglutinin content if kept dry, even if they were exposed to strong sunlight and fairly high temperatures.

BIBLIOGRAPHY

The literature on the subject is so extensive that no attempt is made to cite it here.

So far our search has not shown any work on the agglutinin factors in dried stains on the lines of the present investigation. A good review of the general technique of blood grouping is to be found in a paper by J. C. Thomas (*Medico-Legal and Criminological Review*, 1937, **5**, 54).

The National Institute of Industrial Psychology (Aldwych House, W.C.2) has just published the July–August issue of *The Human Factor*, price 2s. 6d. The first article, by Mr. H. D. Henderson, deals with the displacement of labour by machinery. Mr. T. G. Rose, recently appointed general director of the Institute, has written an article on clearer business vision, in which he stresses the need for good will in any industrial concern. Dr. O. A. Oeser of St. Andrews University deals with the complex social and psychological factors which may determine the choice of a career. The Institute is now developing an advisory service to educational authorities on the design and provision of equipment, and on methods of heating, lighting, and ventilation in schools. Results of various investigations are detailed in an article on school buildings.

Clinical Memoranda

Neuritic Symptoms following Injection of Gold Salts

Graham Lescher (1936) has recently described a case of polyneuritis following treatment by gold salts and has commented on the extreme rarity of this complication. In our experience, obtained mainly in the treatment of skin diseases, lupus erythematosus, psoriasis, lupus vulgaris, sarcoids, etc., over a number of years, neuritic complications have not been seen.

The common gold reactions—exfoliative dermatitis, eczematous reactions, stomatitis—cannot be foreseen in any individual case, but as Hartfall and Garland (1936) have indicated, are less likely to occur with small doses of gold. However, there is interest in the speculation that the neuritic type of reaction may be anticipated and be preventable.

CASE REPORT

Our patient was a lady of 57 years who complained of burning in the soles of the feet for a year. Several years ago she had had pain and swelling of the small joints of the hands. The skin of the feet, particularly at the pressure points, was red, hyperkeratotic, and showed numerous telangiectases. On the lower lip, spreading beyond the red margin, was a red defined area, finely scaling. The tip of the tongue was red and smooth. At the angles of the mouth there was some dry fissuring. On the right of the scalp was a bald patch with slight atrophy. The appearance of the lower lip and of the feet suggested the diagnosis of lupus erythematosus, and the bald patch on the scalp was thought to represent the site of a healed area of this disease. The patient gave no dyspeptic history, but a test meal showed no free or combined acid during the two hours following the meal. The blood count (Dr. Knott) gave 100 per cent. haemoglobin, 5½ million red blood cells, and 8,900 white blood cells, with a normal differential count. The blood uric acid (Dr. Ryffel) was normal (3.2 mg. per 100 c.cm.). The following doses of gold were prescribed: October 15, 1936, solganol B 0.05 gramme; October 22, solganol B 0.1 gramme; October 29, solganol B 0.1 gramme (on this date she was given 20 grains each of sodium bicarbonate and potassium citrate before meals, and 40 minims of dilute hydrochloric acid in water with meals); November 6, solganol B 0.1 gramme. Three days after the last dose of gold the temperature rose to 102°, and remained 99° to 100° in the morning and 102° to 104° in the evening for thirteen days. There was severe pain in the limbs and the back, with sweating. The throat was injected. At first she was thought to have contracted influenza. There was superficial tenderness to touch in the limbs, particularly severe around the upper abdomen and ribs. The knee-jerks were normal and the plantar reflexes were not obtained.

There was increasing restlessness at night, which was not relieved by full doses of Dover's powder, allonal, veganin, and chloralamide. The temperature gradually subsided after a further three weeks. The patient was comfortable during the day, but the superficial tenderness and pins-and-needles with severe restlessness returned at night, together with a rise of temperature. Dragging of the feet was noticed when she got out of bed. The temperature and symptoms subsided gradually during the next month.

Lescher's case showed some points of similarity with the above. Thus, the patient was a lady of middle age, there was some glossitis with achlorhydria, and a normal blood count. In our case, however, only 0.35 gramme of solganol B had been given against 1.56 grammes of myocrisin; but, as Lescher states, "nervous complications can occur soon after the first injection of the salt, or more commonly near the end of the first or subsequent courses." The restlessness, insomnia, and desire to walk about at night have been observed by others.

Whether the febrile reaction seen was due to the direct toxic action of the gold is a matter for discussion. The extreme rarity of the complication would suggest the possibility of another factor, and in this connexion we would refer, as Lescher has done, to Douthwaite's (1936) cases of gastrogenous polyneuritis, in which the only constant finding was an achlorhydria associated sometimes with anaemia. The achlorhydria and glossitis were present in the two cases discussed above, and it appears possible that a latent polyneuritis was activated by the gold.

It seems to us a counsel of perfection to give a test meal and take a blood count in all cases of skin disease in which gold treatment is proposed and in some cases may be impracticable. If in spite of the finding of an achlorhydria it is considered desirable to give gold, preliminary medication with hydrochloric acid, glycerin of pepsin, and vitamin B, as Douthwaite suggests, might improve the health of the peripheral nerves and prevent the appearance of this distressing complication.

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Carcinoma of Bronchus in a Boy of 19

It may be of interest to report a case of carcinoma of the bronchus in a boy of 19 resembling in many ways the case described by Dr. J. Gordon Hailwood in his interesting paper in the *Journal* of March 20 (p. 606).

H. E. S., transport driver's mate, aged 19 years 11 months, was admitted to this sanatorium in March, 1935, with a history of cough and scanty sputum for the past ten weeks, diagnosed as "bronchitis"; two weeks prior to admission his sputum was blood-stained. He also complained of pain and stiffness of the hips and knees, present for about two weeks.

On admission there was a large right-sided pleural effusion with gross displacement of the heart and trachea to the other side. The opposite lung was congestive in appearance. Sputum 1 oz., frothy and blood-stained, tubercle-negative; temperature 100° F., pulse 120. On aspiration the fluid was uniformly haemorrhagic, and 42 oz. was slowly aspirated to bring the heart back to its normal position. A few days later the effusion was replaced by air, 80 oz. of blood-stained effusion being removed. A radiograph at this stage showed a large mass occupying the right lower lobe area, and the mediastinal shadow was double width. The pain in the legs persisted and progressed, and within ten days of admission he had developed a complete flaccid paraplegia with sphincter incontinence. The Wassermann reaction was negative. The diagnosis made was neoplasm of the lung with secondary mediastinal glands and secondary deposit in the spine. He was discharged to a general hospital, where he died four and a half months later.

A necropsy revealed a tumour the size of a small orange apparently arising from the main right bronchus; the growth had extended and had infiltrated the walls of the right auricle and ventricle. The mediastinal glands were involved, secondary nodules were present in the liver, and there was neoplastic destruction of two of the lower dorsal vertebral bodies. On section the tumour was found to be an oat-celled carcinoma.

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Reviews

INJURY IN RELATION TO DISEASE

Trauma and Disease. Edited by Leopold Brahdy, B.S., M.D., and Samuel Kahn, B.S., M.D. (Pp. 613; illustrated. 35s. net.) London: H. Kimpton. 1937.

Textbooks of medicine mention injury as a factor in the aetiology of a great many diseased conditions, but the evidence of such a relation is often most inadequate, amounting to little more than the fallacious argument, *Post hoc, ergo propter hoc*—"Toads appear after rain, therefore it has rained toads." Drs. Brahdy and Kahn have set out in this book to show exactly in what circumstances and to what extent injury may cause or aggravate disease processes; these editors have been assisted by twenty-two colleagues, and the result of their labours is a most valuable book. The postulates are clearly expressed upon which an opinion may be based as to whether a given pathological condition is a result of trauma. The work of previous investigators is subjected to a critical review, and a great deal of original observation is recorded. The great war provided an immense amount of material for research in this matter, and some interesting deductions are made. It was found, for example, that the incidence of organic disease of the central nervous system was not appreciably greater among those exposed to war hazards than among persons not so exposed. The possibility of tumours being due to injury is thoroughly discussed, and the conclusion is reached that "there is no reasonable evidence of any relationship between a single injury and the production of a cancer," exception being made in the case of sarcoma arising in the site of a fracture, and malignant disease supervening in a scar. There is experimental evidence to show that injury is just as likely to set up retrogressive changes in a tumour as to accelerate its growth. Injury is so common (in 1933 there were recorded over eight million disabling accidents in the United States, and Vernon estimates that the annual total is much higher than this) that the factor of coincidence is very important. The authors assert that "trauma has not been proved to have any significant tendency to cause or aggravate tumours of the brain," and figures are quoted showing that although a history of head injury was elicited in 13 per cent. of a series of 431 cases of cerebral glioma, a similar history was obtained among 35.5 per cent. of a control group of 200 normal persons.

There is an excellent chapter on trauma and diabetes mellitus, written by Dr. Joslin, with the co-operation of Drs. Root and Marble. The hereditary factor in this disease is stated to be of very great importance, but is often insufficiently appreciated owing to lack of adequate inquiry. Thus a woman developed diabetes at the age of 20, when she quoted only one relative as suffering from this disease; twenty-two years later it was established that eighteen of her relatives were diabetic, including her mother and grandmother. Although a single direct injury to the pancreas can scarcely ever set up diabetes (unless nine-tenths of the gland is destroyed—a state of things almost certain to be quickly fatal), yet the disease may appear in a susceptible person—that is, one with a diabetic heredity—as a result of overfeeding and lack of exercise consequent upon an injury. One war veteran in America actually established his right to a pension in respect of diabetes, brought on by "exposure to food" in a camp at Hoboken, where he put on much weight! The incidence of diabetes among the American troops in France was lower than among those who did not proceed over-seas; and out of 12,498 wounded men there were only three recorded cases of diabetes, two of which were seen by the author, who found no reason to attribute the disease to war service; his conclusion was that neither the organic nor the psychical traumata of war had any appreciable importance as causes of diabetes.

The general plan in this book is to give a short, systematic account of a pathological condition, then case-histories showing how such a condition may follow injury, and finally a commentary explaining the relation of the disease to the injury. No attempt is made to deal with such obvious sequences as fractures due to single accidents, perforation of viscera by foreign bodies, or ordinary infections of damaged tissue. Other omissions are less easily accounted for. Thus there is no discussion of the problem of traumatic hernia, or of detachment of the retina after blows on the head. "Juxta-epiphyseal strain" is not mentioned as a predisposing factor in osteomyelitis; indeed, the opinion is expressed that trauma plays "an extremely rare role in the aetiology" of this disease, except in cases of compound fracture.

The book is well printed and has an adequate index and very full bibliographical references, and should prove to be of great value to those who have to advise in cases of claims for personal injury in which the relation of the alleged injury to the present condition is not clear.

HYGIENE FOR MEDICAL STUDENTS

Handbook of Hygiene. For Students and Practitioners of Medicine. By Joseph W. Bigger, M.D., Sc.D., F.R.C.P.I., D.P.H. (Pp. 406; 16 figures. 10s. 6d.) London: Baillière, Tindall and Cox. 1937.

Works on hygiene published lately in this country have shown a tendency to arrange themselves into two main groups: first, the smaller books, which seek to aid the medical or other student in the revision of his previous knowledge, and, secondly, the larger textbooks, addressed to candidates for a public health diploma, which include a wider field. But neither group meets the genuine need of the student of medicine. For his own study of hygiene he requires something between.

A work which may claim to fill this gap in a very adequate manner now appears from the pen of Professor Bigger of Dublin. It is, as the author states in his preface, specially intended for medical students. After an introductory note on vital statistics the communicable diseases are presented, as is proper, in some detail. The view is expressed that the student of medicine derives little profit from courses of instruction in vaccination as usually conducted. On disinfection the author says, "With the exception of small-pox, room disinfection is only necessary in the case of diseases conveyed by insects." He deprecates alarmist discussion of the so-called cancer menace. "More nonsense," he says, "has been spoken and written about the cause of cancer than about almost any other subject." That his outlook is not limited to the narrow seas is shown by his reference to the mottling of the dental enamel occasioned in North America and elsewhere by fluorine-charged waters. One of the many good points which he makes is that "while ventilation and heating must be considered together, they must never be effected together."

Where opinions differ the author is fair to both sides, but he never fails to state his own view, which is a substantial merit in a work of this kind. He writes with candour and elegance, and from time to time makes happy use of a lively phrase to vary his graver discourse.

For example, speaking of air temperature, he says, "It is doubtful which of the two feels more uncomfortable—an American in an English house or an Englishman in an American house during the winter."

The book covers its field well. In addition to the usual topics it includes a section on war gases. It should meet the requirements of those to whom it is addressed. In his preface the author expresses the hope that his students will not sell their copies when their examinations have been passed. We do not think they will.

LIFE IN THE R.A.M.C.

Soldiering With a Stethoscope. By Colonel N. J. C. Rutherford, D.S.O., M.B. (Pp. 288; illustrated. 12s. 6d. net.) London: Stanley Paul and Co. 1937.

This book, as its name implies, is a chronicle of life in the R.A.M.C. Colonel N. J. C. Rutherford joined this corps in 1898, and a year later he was on active service in South Africa, his varied experiences in the campaign including a term as medical officer of a Colonial mounted infantry unit—Nesbitt's Horse. In 1908 he served for a short time in Sierra Leone. During the great war he saw much active service in France and on the Salonika front, followed by a period in Constantinople during the troubled years which succeeded the armistice. In 1924 he was stationed in India, seeing that country for the first time at the age of 50, and finally, on his retirement from the active list, he held the post of resident medical officer at the Tower of London for four years until 1933.

There is not a dull page in this book. Blessed evidently with an equable temperament Colonel Rutherford takes the rough with the smooth and never fails to see the humorous side of life. The chapters on the war of 1914–18 are especially good. The author describes the dashing escape of a German Uhlan from some British headquarters in the Hotel de Ville at Steenwerck: "It was a real romantic effort and I hope he got away safely." This comment is from the colonel's diary, written at the time, and shows the consistent freedom from hate and rancour which appears to be a pleasant feature of his character. This book reveals what an enjoyable, useful, and interesting life may be spent in the R.A.M.C., and many readers will probably regret that their career has lain in less adventurous paths.

PROBLEMS OF GROWING CHILDREN

The Growing Child and its Problems. Edited by Emanuel Miller, M.A., M.R.C.S., L.R.C.P., D.P.M. (Pp. 231. 6s. net.) London: Kegan Paul and Co. 1937.

This is a volume of useful essays by seven well-known writers on child psychology, including the editor, on the problems presented by the mental growth of children from 5 years of age to the close of adolescence. They attempt to describe the sort of mild disorders which show that a child is troubled or maladjusted, and how best to meet these difficulties and clear the path by which the child may enter adult life with a reasonable prospect of success. Miss Gwen Chesters writes a practical article on play therapy and the use of water, sand, dough, and such simple materials in straightening out a child's mind and making it intelligible to himself and his guides. Miss Constance Simmins explains education, guidance, intelligence-testing, and the art of matching a child's schooling with his abilities and tastes. The remaining writers are medical, and Dr. Laura Hutton deals with the adolescent girl and the problems bound up with puberty and its disturbance of the endocrine balance. Personality deviations in children are considered by Dr. Clifford Allen. Dr. Paterson Brown, in an essay on habits, traces the origin of most of the excessive practices which give trouble in childhood, and advises the parent or teacher to be tolerant of habits if he would be saved from worse disasters. In a study of neurosis in school children Dr. C. L. C. Burns points out the contributory factors in the parents and gives sound advice for treatment.

The last essay in the book is by the editor, on problems of the growing child; Dr. Miller writes in his usual effective manner on the basis of his great experience. The several papers are, on the whole, conspicuous for the practical attitude which their writers adopt towards these difficult subjects.

GASTROPHOTOGRAPHY

Atlas der Gastrophotographie. By M. J. Heilpern, O. Porges, and H. Hofmann. (Pp. 29; 38 plates, 7 figures. M. 10; geb., M. 12.) Leipzig and Vienna: F. Deuticke. 1936.

The difficulties in diagnosis of gastric diseases have driven practitioners to seek methods of securing information about the state of the mucous membrane of the stomach if possible by means that cause no inconvenience or risk to the patient. The earlier gastroscopic apparatus, rigid and of a large enough diameter to obtain useful views, was by no means free from danger, and many were led to try methods of obtaining photographs of the lining of the stomach. The difficulties were those principally of illumination and of sighting to obtain views of lesions thought to be present. Professor Porges and his collaborators have invented a gastrophotographic apparatus which they have modified over the years, and by means of it they can obtain very fair photographs of the gastric mucous membrane. In a short book they have brought together the results of their work. Twenty pages are given to the description of their improved apparatus and the technique to be adopted in using it, and the remainder of the book is made up of series of photographs of the gastric mucous membrane in all sorts of states—normal, inflamed, ulcerated, and malignant. There are many fallacies in the interpretation of the pictures obtained; the appearance of mucus or blood must be recognized, normal folds of the gastric lining have to be differentiated from hypertrophic or atrophic states and the edges of ulcers or the projections of cancer.

The photographs are clearly reproduced and their meaning is discussed in the text, and readers will find in the book a very useful guide to a highly specialized and difficult technique. And those who have worked at the subject and recognized its limitations will still feel that a better and more satisfactory diagnosis may be made by confirming the serial pictures, obtained by careful technique with *x*-ray and barium meals during the filling and emptying stages of the stomach, with gastroscopy by means of the convenient flexible modern gastroscope the use of which is fraught with little or no risk to the patient.

Notes on Books

The Soul of the White Ant, by the late EUGENE N. MARAIS (Methuen, 7s. 6d.) is a remarkable study in natural history, comparable to the work of Henri Fabre. The term "white ant," as the author admits, is a misnomer, for the book deals with the life of termites. The author puts forward the theory that the organic unity of the termitary may be compared with the human body, the position of the queen being analogous to that of the human brain. Maeterlinck, in his *Life of the White Ant,* maintained the same thesis, but Miss Winifred de Kok,

who has translated the present volume from the original Afrikaans, brings evidence to establish Marais's claim to priority. While the greater part of the book is devoted to the termitary and its inmates (or constituent parts), the author digresses in one most interesting chapter entitled "What is the Psyche?" to baboons. As a result of long and close acquaintance with these animals he states that the difference between the psyche of the lowest baboon and of the highest mammal below the primates is far greater than that between the baboon and man. He regards the psyche of man and of the baboon as the same in quality, differing only in quantity. This book is a record of painstaking observations and the deductions drawn from them by an independent, logical, and analytical mind. Any reader to whom the subject appeals will find it of absorbing interest.

The Transactions of the American Gynecological Society for 1936 (Volume 61) have been issued under the editorship of Dr. OTTO H. SCHWARZ by the C. V. Mosby Company of St. Louis. The papers contributed to this society during the year are followed by obituary notices of six American gynaecologists, and of Sir Kedarnath Das of Calcutta and Professor William Blair-Bell of Liverpool.

No. 17 of the Individual Psychology Medical Pamphlets includes the *Parent–Child Relation*, and other papers read before the Medical Society of Individual Psychology, London. It is published by the C. W. Daniel Company, Ltd., at 2s. 6d.

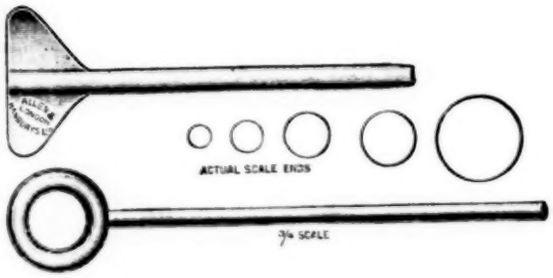
The Union Press of Bombay has printed in pamphlet form a paper on *Assessment of Risks in Life Assurance Practice*, contributed by Dr. JEHANGIR J. CURSETJI of Bombay to the third Indian Insurance Conference, held in Calcutta on March 7, 1937.

Preparations and Appliances

INSTRUMENTS FOR PLANTAR WARTS

Dr. F. A. E. SILCOCK (honorary dermatologist, Leicester Royal Infirmary and City General Hospital, Leicester), writes: Having recently had several cases of plantar warts to deal with by surgical excision, I got Messrs. Allen and Hanburys Ltd. to make to my design the following instruments, which have proved very useful.

1. Several punches, consisting of various sized circular steel cylinders with a sharp bevelled cutting edge. These are for punching out the warts, using a size slightly bigger than the actual wart to be removed.



2. A small-bladed scalpel, with the blade curved on the flat. This blade can be made with the cutting edge facing either

right or left. These are handy for either removing the warts by undercutting them or to free the base of the piece of tissue punched out as above.

3. An apparatus for injecting solutions into the skin or subcutaneous tissues under pressure. It can be used for various solutions or for injecting local anaesthetics. The principle of this is similar to that of a soda-water siphon, only the pressure is obtained by means of a small removable external force pump which can be worked with one hand. It consists of a graduated glass cylinder inserted in a metal frame, resting on a rubber base, with a screw-down top provided with two metal connexions leading, one to the pump and having a turn-off tap, the other by means of a short

length of metal tubing from the solution in the cylinder, provided with a fine screw-down release valve, and which can be connected with a length of rubber tubing to the injecting needle. There is also a small turn-off tap at the distal end of this rubber tubing, on to which the needle is fitted. In order that oily or thicker solutions may be used, if required, larger bored metal tubing can be substituted in place of the finer one leading from the solution in the glass cylinder by screwing them on instead. All parts of the apparatus are readily taken down for cleaning and sterilization, and with the exception of the glass cylinder are rustless and unbreakable. If one wants to estimate the exact pressure it can be done by connecting a pressure gauge in place of the pump, but in actual practice I have not found this necessary, as one can be guided by the rate of flow of the fluid, etc. An obvious advantage of this instrument is that one can keep "on tap" large quantities of various solutions, ready to inject, with the minimum of preparation when required. Being of fairly stout construction it should be less liable to be broken than the average glass syringe.

NEW VALVE AMPLIFIER HEARING AID

The technical laboratories of Allen and Hanbury's Acoustic Department have produced a new valve amplifier hearing aid. It appears in two patterns, one working from a two-volt accumulator and dry battery, employing two stages of amplification, and the other with larger capacity batteries and using three valves, giving increased output. The smaller model gives twenty-five hours' use before the accumulator needs recharging, and the dry battery has a life of about three months. The instruments have a wide frequency range, giving effective amplification over 50 to 6,000 cycles per second. Very little background noise is experienced, and for cases in which the slightest background noise may be intolerable a piezo-electric crystal microphone, entirely free from "background," is available at a small additional cost. The user has a choice of four types of air or bone conduction earpieces. An important feature of the instrument is the standardization of automatic volume control, ensuring the maintenance of a comfortable level, with non-registration in the instrument of loud noises in the immediate vicinity. The construction and performance seem to be admirable; the maintenance cost is low—only a few pence per week—and a comprehensive service is guaranteed. The smaller model is carried in a leather case rather like a small camera, to which a shoulder sling can be added. The other model, a more powerful instrument, is carried in a black hide brief case, but being very flat it is no more incommodious than an ordinary handbag. The cost of the models is sixteen and eighteen guineas respectively, in each case including a spare accumulator.

Nova et Vetera

THE SCOTTISH TRADITION IN SURGERY

Sir David Wilkie delivered an address on the Scottish tradition in surgery to the Caledonian Society of London on February 11.

Sir David recalled that it was in London that John Hunter started this Scottish tradition. When some ninety years before the founding of your society, he said, the uncouth West Country lad came up from East Kilbride to London to study anatomy with his learned brother William an epoch in surgery began—from being little more than a craft it was destined to become a science. Hunter, first by his intimate study of anatomy, then by his study of comparative anatomy and biology, by bringing his remarkable powers of observation to bear on disease and founding what we now term surgical pathology, and finally by introducing into the solution of surgical problems the experimental method, laid the foundation for all progress in surgery since his day. He was one of the three greatest surgeons of all time and a worthy founder of the Scottish tradition in surgery. His breadth of view in searching the whole field of nature for the secrets of bodily form and function and their disorders, his rugged honesty, his insatiable curiosity and untiring industry set a standard never since equalled, but forming a constant stimulus and inspiration to all surgeons.

When Jenner, the discoverer of vaccination, debating in his mind the possibility of immunizing human beings by giving them cow-pox, wrote to Hunter for advice he got the laconic and characteristic reply: "Don't think; try it."

Scottish Surgery After Hunter

It is perhaps not without significance to note that at the time of the foundation of your society Scottish surgery stood in higher repute than it ever since has done. In that year Sir Charles Bell returned to Edinburgh to the chair of surgery after a distinguished career in London. Known all over Europe for his researches in anatomy and physiology, he was as distinguished a scientist as he was a gifted artist.

His brother, John Bell, had died some years before, but his influence as a teacher and a surgeon was still evident in the practice of his pupils. One of them, Ephraim McDowell, way out in Danville, Kentucky, had successfully performed the first abdominal operation and generously given the credit to the teaching of John Bell. Lizars followed up McDowell's work in Edinburgh, and was the first ovariotomist in this country.

Syme, one of the greatest surgeons of all time and the father-in-law of Lister, held the chair of clinical surgery and was the leading teacher of the day. It has been said of him that he "never wasted a word or a drop of ink or a drop of blood." To this day the operations which he devised are practised and his principles of teaching are observed.

Just a year before, Syme's colleague, Liston, had gone from Edinburgh to London, where he was to become the leading surgeon of the day. A man of magnificent physique, standing 6 ft. 2 in., he was the greatest exponent of the rapid surgery of pre-anaesthetic days. The students, with their watches in their hands, timed his operations in seconds—amputation through the thigh, 1 minute 15 seconds; removal of a stone from the bladder, 2 minutes 5 seconds. Strangely enough he was the first surgeon in this country to use a general anaesthetic—ether—the year before Simpson first used chloroform in Edinburgh.

When Liston left Edinburgh his place was taken by a surgeon, Fergusson by name, a skilled anatomist and teacher, who four years later went to London, where he justly acquired a commanding reputation as a surgeon and teacher and the greatest exponent of conservative surgery in the country. Sir William Fergusson became Serjeant-Surgeon to Queen Victoria and the leading surgeon of his day.

This remarkable group of men all had this in common—they had all been teachers of anatomy in the famous classrooms of Barclay and of Robert Knox, they had the lion's heart and the lady's hand required for major surgery, especially in pre-anaesthetic days, and all their work was distinguished by sound judgement and by a wise conservatism.

Lister in Scotland

If anaesthesia was first used by Scottish surgeons in this country the still greater advance—antisepsis—was evolved by an Englishman, Lister, working in two Scottish universities. Attracted to Edinburgh by Syme's reputation, Lister became a devoted disciple of this great surgeon and found the atmosphere which favoured the germination of the ideas which were already stirring in his mind.

It was while professor in Glasgow that Lister carried out the crucial tests of his antiseptic system, and when he returned to Edinburgh to fill the chair vacated by Syme it remained only to convince others of the great truth he had laid bare. Returning to enthusiastic students and to visiting surgeons from all over the world, this Edinburgh period was the happiest and most fruitful in his life. Later in London he met with opposition and, still worse, indifference, and often sighed for the generous and open-minded enthusiasm of the crowded classrooms he had left. No one followed the Hunterian tradition more consistently than Lister, who, by bringing the scientific methods of the laboratory to bear on a practical surgical problem, changed the whole face of surgery and for all time made it safe.

The Tradition in Modern Times

Coming still nearer to the present we find the tradition of careful observation and logical deduction leading to rational and successful treatment exemplified in the work of Macewen of Glasgow on the surgery of the brain and of the chest, pioneer work which has stood the test of time. In Aberdeen Ogston maintained the reputation of Scottish surgery for enterprise, combined with soundness, and of Scottish teaching for clarity and candour. Meanwhile in London Watson Cheyne promoted Listerian practice and Scottish teaching methods, and later Thomson-Walker handed on the torch.

In Edinburgh Caird and Stiles raised high again the good name of Scottish surgery, and by their habits of travelling far and wide kept in the forefront of an ever-moving science. That Edinburgh should have again become a Mecca for surgeons from the Dominions and America is largely due to the brilliance of these two men as surgeons and as teachers.

The opportunity for research and for advance in knowledge which surgery now offers to the surgeon and the benefits which result from a correlation of clinical and experimental work were long in being appreciated in this country. It is to the credit of Scottish surgery that the first Department of Experimental Surgery in the Empire was opened in Edinburgh twelve years ago, an example followed in Montreal and London. That young surgeons should have the training in the careful observation and the controlled experiment which the experimental laboratory provides is one of the most important factors in making for advance in medicine, and in promoting this Scotland has led the way.

As in other fields, so in surgery, the Scot owes much to his primary education and to following out the principle that only on a sound foundation of the basic sciences,—anatomy, physiology, and pathology—can a noble edifice for surgery be built. The habit of travel brings enlightenment, and with Scottish surgeons it has been a creed. The reputation for care and for stability, for common sense and blunt honesty, has made the opinion of the Scottish consultant proverbially sound. The young Scottish surgeon has indeed a noble heritage.

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CHEAP MILK FOR MOTHERS AND CHILDREN

A " positive milk policy " is being urged upon the Government by the Children's Minimum Council, a body of which Sir Frederick Gowland Hopkins is president and which has the support of twenty-six national organizations concerned with maternity and child welfare. The Council has submitted a plan to the Ministry of Health for the provision of cheap milk for mothers and children under school age. Some recent investigations have shown that the consumption of milk in working-class households is far below the amount regarded as desirable, that consumption falls with falling household income and number of children in the family, and that many children get little or no fresh milk. The report of the Advisory Committee on Nutrition, published in April last,[1] recommended from one to two pints a day for children, two pints for nursing and expectant mothers, and half a pint for other adults; but the Council points out that at present prices this would mean for a family consisting of three children, a mother again pregnant, and a father a weekly milk bill of 13s. 3d. —an impossible expenditure for a working-class family with dependent children. Last year a survey was made of 587 households in Oxford, taken at random and not confined to the working class. In the families where there were no children the average weekly consumption of milk per head was 4.60 pints, and steadily diminished with the number of children until, with six children or more in the family, it became 1.85 pints. In 1,000 " welfare " families in the county of Durham it has been found that the average amount of fresh milk purchased falls from 0.7 pint a week per head for families of three persons to 0.4 pint for families of five. No doubt distaste, prejudice, and indifference contribute to the low consumption of milk, but the full benefit of educational propaganda cannot be effective in the classes where consumption is lowest until milk is offered at a price which the people can afford to pay. In Great Britain the average price of liquid milk is much higher than in any other country of North-West Europe or in the United States. In Sweden, with milk at 1½d. a pint, the annual consumption of the non-agricultural population is 420 pints per head; in Great Britain, where the average price is more than twice as high, it was only 150 pints in 1934–5. In the Council's opinion no general reduction of price which seems commercially feasible in the near future will of itself be enough to bring milk within the range of mothers and children in less well-to-do homes. Milk must therefore be made available for these people as a matter of social policy.

The proposal of the Council is that milk should be purchasable at 1½d. a pint for all expectant and nursing mothers and children under school age in families of insured workers and others of like economic status, and that the quantity available at that price should be up to two pints a day for mothers and one pint for children. Its view is that a substantial increase in consumption of milk by these people is of such vital importance to public health that it would be in the national interest to subsidize existing retail prices (averaging 2s. 2d. a gallon) sufficiently to bring milk within reach of the poorest. But the position of the milk industry makes such a costly resort unnecessary. Rather more than one-third of the milk sold through the Milk Marketing Board is sold for manufacture at prices which average at less than 5½d. a gallon. Part of this flood of cheap milk should be diverted to the needs of mothers and children. The Council calculates that a sufficient supply of milk could be made available, if producers and distributors agreed on some concession, at 1s. 5d. a gallon. The gap between this figure and the 1s. a gallon to be charged for the milk would need to be bridged by a subsidy from the Exchequer. The scheme should be organized through the public health authorities and the milk distributed to the homes of the consumers. It is estimated that in Great Britain there are about three and a half million expectant and nursing mothers and children under 5 of this economic status. If they became eligible for cheap milk and their demands averaged only half a pint a day the total consumption at the cheap prices would be just under eighty million gallons a year, entailing, at 5d. a gallon, a national subsidy of £1,663,000.

The principle of differential prices is of course not new; many industries—and professions too—charge lower prices to certain consumers or clients in order to meet demands at different levels. The milk producers themselves practise price discrimination when they charge 3½d. a gallon for milk which is to be made into butter and cheese, and 1s. 3d. when it is to be resold to the housewife. The producers enjoy a monopoly of the home market, have statutory power to fix the price of their produce,

[1] *British Medical Journal*, April 10, p. 771.

and receive substantial assistance from the Exchequer. To enable the Board to maintain present pool prices and at the same time to sell manufacturing milk at world prices, the public are not only paying a relatively high price as consumers, but as taxpayers they are subsidizing the sale of milk for manufacture. The good will of the public for the Marketing Board, on which its success to some extent depends, will be more readily accorded if it can be shown that the Board's monopoly powers do not result in depriving a large section of the public of the milk essential for their children. The Council is also urging that milk should be supplied free for expectant mothers and young children in families where the money available for food is insufficient for full health. At present under most local authorities, even after a stringent income test has been satisfied, the milk is only supplied free when clinical symptoms reveal the need for additional nourishment. In the Ministry of Health's circular accompanying the Advisory's Committee's report it was urged that the scale of income for milk assistance should be so framed as not to render it difficult for any mothers to take advantage of the authorities' arrangements. The Council suggests that a basis should be laid down by the Minister in the light of nutritional requirements, possibly following the estimate made by the Nutrition Committee of the British Medical Association as to the minimum costs of satisfying food requirements, revised to conform with the milk recommendations of the Advisory Committee, or the Advisory Committee itself might be asked to draw up a scale for the guidance of local authorities.

Some discussion on milk policy arose during a session of the Imperial Social Hygiene Congress held in London last week. Sir John Boyd Orr, in an address on nutrition, said that the primary policy of the Government should be to ensure that an amount of milk adequate for health is brought within the purchasing power of every member of the community. The representative of a county council asked whether it was wise to stress milk so far as adults were concerned, in view of the fact that this might blind people to the need for a good mixed diet. Sir John Orr replied that milk was not an essential food for anybody; even for young children a perfect diet could be devised without milk at all; but the reason for emphasizing milk was because the common diet of the poorer population, with its large reliance on white bread, sugar, and margarine, was deficient, and milk offered itself as the cheapest means of correcting nutritional faults. For those who could command a varied diet of tomatoes, green vegetables, and so forth milk was unnecessary.

GASTRIC DISORDER AMONG BUSMEN

In the *British Medical Journal* of July 10 (p. 69) there appeared a full summary of the contents of the report by Dr. A. Bradford Hill on the sickness experience of London transport workers, published by the Industrial Health Research Board.[1] The report is so clearly written that we need not again summarize the findings. It is sufficient to say that the scope of the medico-hygienic problem still requiring investigation has been satisfactorily defined, and that it should now be possible, given the frank co-operation of those having expert knowledge of the administrative, medical, and psychological questions involved, to reach a solution. We think, however, that both what was said before the report appeared and the way the report has been received give cause for reflection.

Since in the most populous European states free discussion of subjects which have, or are thought to have, political or social implications is about as dangerous as criticism of the Government under Tiberius, we are not unnaturally proud of the very different position in our own country. But not a little of what has appeared in the public press since the bus strike must make the judicious grieve. So far as this derives from party spirit, from a desire to make a party score on one side or the other, we have no concern with it. Even when it is suggested that the correct plan of a scientific investigation was settled long ago by the Queen of Hearts, "Sentence first—verdict afterwards," we can afford to smile. But there is more than a suspicion that these eccentricities are not wholly confined to politicians. In the first place we do not think that either in the evidence taken by or in the report of the tribunal appointed at the time of the strike, the public were sufficiently informed of the facts (*a*) that a scientific investigation had been proceeding for more than three years; (*b*) that, as in every investigation of the aetiology of sickness, an adequate "control" group must be obtained; (*c*) that the method of investigation must be statistical, but a statistical investigation checked at every point by medical and administrative experts.

There was a tendency to depreciate the statistical method as inferior to some other, not clearly defined, more scientific approach. The public are still ignorant of the amount of work done by the Medical Research Council and the Industrial Health Research Board—work in which members of the medical profession take a large part—in focusing knowledge of industrial health problems. In this particular case they and their investigators have been done considerably less than justice. No prob-

[1] Report No. 79. H.M. Stationery Office (6d., postage extra).

lem can be solved until it has been correctly stated. Finally there have been signs of an extension of a habit which used to characterize some high-browed periodicals. We are all familiar with the supercilious reviewer who remarks that if Mr. X. had been acquainted with the important papers by Y. and Z. he would not have written his book at all or would have written it quite differently. In this case there has been a tendency for experts in particular fields to overemphasize the value of specialist knowledge. What has not been realized is that the problems of industrial sickness are essentially matters for team work, and that violent or scornful emphasis on this or that method of approach tends to destroy the spirit of co-operation without which team work is impossible.

THE REPAIR OF ANAEMIA

In health the blood is maintained with surprising constancy at a level about 5,000,000 red cells and 100 per cent. of haemoglobin per c.mm. The length of life of the red cell is not known with any certainty, but it is supposed to be from twenty to fifty days. Assuming a span of life of twenty-five days, calculation shows that some 200,000 old red cells must die and 200,000 new red cells must enter the circulation every day. Anaemia may result from an increased rate of destruction or a decreased rate of production of red cells or from a diminution in their length of life. In pernicious anaemia the poverty of the blood and the megaloblastic degeneration of the bone-marrow are nowadays attributed to a decreased rate of production of red cells from lack of essential principles. There is a close correlation between the degree of anaemia, the extent of hyperplasia of the bone-marrow, and the height and duration of the reticulocyte crisis on the inception of treatment with optimum doses of liver or other effective substances.[1] Mathematical formulae have been devised whereby the expected reticulocyte crisis can be calculated, and such formulae are of value in testing therapeutic preparations. The anaemia which follows a sudden fall in the number of circulating red cells, as from a haemorrhage or a crisis of haemolysis, is repaired spontaneously within a few weeks, and we have been accustomed to attribute this repair to an increase in the rate of erythropoiesis. Such an increase could be explained either by a more rapid maturation of the cells through the stages of erythroblast and reticulocyte to mature erythrocyte, which seems *a priori* improbable, or to an increase in the amount of haemopoietic tissue, which is in fact confirmed by pathological findings. This explanation is challenged by Schiodt,[2] who has made careful observations on blood regeneration in man after haematemesis and melaena. He finds that there is a distinct correlation between the minimal blood count and the daily rise in red blood cells. The more the patient has bled the faster the blood mounts, and all the curves, though starting at different levels, tend to meet at the level of 4.54 million red cells per c.mm. about forty days after the haemorrhage. This phenomenon, and especially the straight line character of the curves, could quite simply be explained by assuming that the rate of blood formation and the longevity of the red cells remain constant. The number of red cells removed from the circulation by death, however, is directly proportional to the total count. If the red cell count falls to 2.5 million only 100,000 red cells will die every day, and there is therefore a natural surplus of 100,000 to correct the anaemia. The theory is perhaps too ingenious, and it does not explain the reticulocyte crisis and the hyperplasia of the bone-marrow which accompany a haemorrhagic or a haemolytic anaemia. But if the rate of production of red cells is actually accelerated for a time it is surprising that repair does not more often overshoot the mark and produce an erythrocytosis. Moreover, one would have expected a sigmoid curve rather than the straight line that Schiodt found. Schiodt's patients were treated by Meulengracht with early feeding. Iron and blood transfusion had no obvious effect on the rate of repair of the anaemia, but it was retarded by fasting or a strict ulcer cure. It is also possible that the use of alkalis may have acted as a check to the attainment of the normal level of 5,000,000 red cells during the period of observation.

[1] *Physiol. Rev.*, 1937, **17**, 291.
[2] *Amer. J. med. Sci.*, 1937, **193**, 313, 327.

VISIT OF BRITISH SURGEONS TO PARIS

A party of thirty surgeons representing the Royal College of Surgeons of England and the Association of Surgeons visited Paris on Monday and Tuesday, July 5 and 6, at the invitation of the Académie de Chirurgie. They were received by the president, Dr. Baumgartner, the secretary, Dr. Louis Bazy, and other members of the Académie. On Monday morning they visited the anti-cancer centre at Villejuif, where they were received by the director, M. Roussy, by M. Bertillon, Mme Simone Labord, and the heads of the various departments. The anti-cancer organization of France, distributed over twenty centres, was explained by Professor Roussy, who then showed the party the extensive and important clinic and laboratories of Villejuif. Of perhaps special interest were the radium unit, designed by Mme Simone Labord, and containing five grammes of radium, and the magnificent *x*-ray plant, of which one unit could reach an intensity of 600,000 volts. Leaving Villejuif the party was entertained at lunch at the Hôtel Foyot, one of the oldest and most famous restaurants of Paris, and afterwards met in conference with the Académie de Chirurgie at its house in the Rue de Seine. After an opening address the president announced that the French Government had conferred upon Sir Cuthbert Wallace, Professor George Gask, and Mr. H. S. Souttar the high honour of the Croix d'Officier de la Legion d'Honneur in recognition of the part they had played in establishing relations and friendship between the Royal College of Surgeons of England and the Académie de Chirurgie. By the authority of the President of the Republic Dr. Baumgartner

decorated each of the recipients in due form. Sir Cuthbert Wallace responded in suitable terms, expressing the deep appreciation which all those present felt of the honour which had been conferred by the President of the French Republic upon the Royal College of Surgeons of England. Several important papers were presented by members of the Académie on the subject of surgical infarctions, and the members then adjourned to the physiological laboratory, where Professor Binet had prepared a series of experiments demonstrating points which had been made in the discussion. In the evening the party, and the ladies who accompanied them, were entertained at dinner by the Académie de Chirurgie at the Hotel Ritz. The occasion was a very brilliant one, and the presidents of the Académie de Chirurgie and the Royal College of Surgeons expressed in short but admirable terms the friendly relations of the two great societies. Tuesday morning was devoted to visits to the hospitals of Paris, where a series of operations had been arranged, and the meeting closed with a visit to the Château of Chantilly, which was specially thrown open for the party by the French Government. The meeting was felt by all to be a great success, and to mark another step in what is hoped may be a long and close friendship between the surgeons of France and of Great Britain.

FURTHER WORK ON THE HYPOTHALAMUS

Localization of function in the brain has been made possible by two distinct methods of approach. One is to expose the area to be investigated and observe the effects of stimulation by accurately placed electrodes. The other is either to remove or to damage the area and to study the disorder produced by loss of function of that particular part of the brain. A localized disease process may either confirm the results of such experiments or, in inoperable areas of the brain, serve as a substitute for them. Both these methods have been used in recent research on that mysterious region of the brain, the hypothalamus. For some time it has been known that electrical stimulation of the anterior part of the hypothalamus gives rise to sweating of the footpads in animals, and there has also been convincing evidence that the hypothalmus contributes to the maintenance of body temperature. Masserman[1] has carried out a series of experiments on animals which go to show that sodium amytal—and possibly barbiturate drugs of a similar nature—has a specific inhibitory effect on the sympathetic reactions of the hypothalamus. A study of the influence of a disease process affecting the hypothalamus on the heat regulation of the body has been made by Finkelman and Stephens,[2] who measured the increase in oxygen consumption and the ability to maintain the normal temperature on exposure to cold in patients with chronic epidemic encephalitis as compared with normal subjects. They found that heat regulation was defective in chronic encephalitis, there being a greater loss in temperature and a smaller gain in oxygen consumption than in normal controls. The greatest loss in temperature on exposure to cold was found in patients with encephalitis who had been treated with atropine. The authors deduce from the findings here briefly outlined that atropine disturbs the heat-regulating centre in the hypothalamus, and they ascribe the disorder of heat regulation in epidemic encephalitis to a lesion at this site. In a disease in which the lesions are so widespread further work is needed to confirm these views.

[1] *Arch. Neurol. Psychiat.*, Chicago, 1937, **37**, 617.
[2] Ibid., 1937, **37**, 514.

ANAESTHESIA IN GENERAL PRACTICE

There appears in this week's issue of the *Journal* the first of a short series of signed articles on anaesthesia in general practice. Anaesthesia has not lagged behind other branches of medicine, and during the past few years has made rapid advances. The comfort of the patient, the importance of allaying anxiety, the choice of anaesthetic agents for different types of patient and for different types of operation are all matters which have received, and are receiving, the attention of those who specialize in the subject, aided as they are by the researches of the chemist and the physiologist. Although anaesthesia is now incomparably safer than it was years ago, new agents introduce new risks, and new methods of dealing with these have to be devised. These and other questions will be considered in the series, which is intended first and foremost for men in general practice, especially for those not within easy reach of elaborate equipment or expert assistance. It therefore seemed apposite to start with a paper by someone actually in general practice, so that the articles that follow may be read against the background of experience of practical difficulties and needs—a background provided by the article at page 126 by Dr. Helen Lukis, who was awarded the Sir Charles Hastings prize in 1934 for her clinical study entitled "The Problems of Anaesthesia in General Practice."

BONOMO AND THE ITCH-MITE

Two hundred and fifty years ago a young doctor of Leghorn identified the itch-mite and refuted the belief that scabies was a disease of internal origin. The revival of interest in Bonomo is due to Dr. Ugo Faucci, whose researches have shown how this discovery furthered the understanding of contagion. When the Italian Society of Dermatology met last month at Leghorn in honour of Bonomo and his collaborator Cestoni, Dr. Faucci brought to light the correspondence of Bonomo with Lancisi, the famous papal physician.[1] The letters are amusing and instructive. Bonomo had submitted his book to the Congresso medico Romano, a private medical society, and Lancisi tells him of its reception. He warns him not to believe everything that he thinks he has seen through his microscope, and says that he is too bold in generalizing about the parasitic origin and

[1] Ugo Faucci: *La Polemica Bonomo-Lancisi sull' origine acarica della scabbia.* Livorno. 1937.

contagious nature of scabies because he has found "worms" in certain cases. When Bonomo repeats his claims Lancisi answers with a formidable display of learning. The English reader will notice that he quotes Willis among many authorities, ancient and modern, including the Bible, to show that scabies can arise spontaneously. Bonomo sent him in return some doggerel verses on the spontaneous generation of insects, and this time Lancisi answers more sternly, hinting that Bonomo's ideas are very near heresy. In a final note the young man admits that his master cannot be mistaken, and that scabies may sometimes arise without contagion. Dr. Faucci suggests that Bonomo's submission was more politic than sincere. He has annotated the letters from a wide knowledge of the period, and they give us an intimate view of medical life in Italy at the close of the seventeenth century.

CANNED FOOD

The canned food of to-day is hermetically sealed and processed in a metal container. The original containers in this method of preserving, as first used by Nicholas Appert in Paris in 1809, were glass bottles. Soon afterwards Durand in England began to employ tin canisters, which were a notable improvement, since they were less fragile than the bottles and also more amenable to heating and sealing. From these beginnings the industry grew, slowly at first, more rapidly later. Great Britain now heads the list of importers. In 1919, as a result of war shortages, there was a sudden increase in the volume of canned imports conveyed to this country. Just as Appert's bottled food was devised for armies in the field, so in these latter days its canned counterpart has already contributed to the "iron ration" of Britain, and may again. Economically the canning industry holds an assured place. Scientifically it has outgrown its early empirical stages and is developing along the lines of an exactly controlled system. A survey of the various procedures now favoured by packing houses is well presented in a recent work by O. and T. W. Jones.[1] The aim of the authors has been to put together a book of practical value. The general principles are broadly laid down and, where necessary, amplified in detail according to the special conditions of the process under consideration. Beginning with the selection and preliminary preparation of the food, the authors next discuss the various forms of the can, indicate the most suitable grades of tin-plate, and explain the purpose of processing. They detail the management of the cannery laboratory. They devote attention to water supply and the question of the hardness of water, including its softening where required. Other topics which are set forth in the same informative manner include general chemical analysis, the microbiology of canning, the preparation of culture media, the food-spoiling organisms, and the effects of canning on nutritive values. A pamphlet by H. B. Cronshaw[2] is concerned more particularly with the wholesomeness of canned foods. Both the principles and procedure of canning are set forth in a concise and lucid manner. Metallic contamination, gas production, and bacterial growth are discussed. Ptomaine poisoning is rightly discounted and medical testimony to the safety of canned foods is aptly quoted. The pamphlet ends with the words: "After a century and a quarter of practical experience the public confidence in canned foods to-day is greater than ever before." This confidence is, we think, in general not misplaced.

[1] *Canning Practice and Control*. By Osman Jones, F.I.C., and T. W. Jones, B.Sc. Chapman and Hall, 25s.

[2] Information Circular No. 2. Issued gratis by the International Tin Research and Development Council, 378, Strand, W.C.2.

EGYPT AND THE DRUG TRAFFIC

In his annual report to the Egyptian Narcotics Bureau for 1936, T. W. Russell Pasha chronicles his continuous warfare against illicit traffickers in dangerous drugs. Two new branches of the Central Bureau have been opened at Tanta and Ayût; the destruction of flowering poppy-crops has been energetically pursued, and the arrest of persons trafficking in hashish and heroin vigorously proceeded with. The danger spot for international traffic in narcotics is Suez, where the door is wide open for smugglers. It is, according to Russell, through the Suez Canal that the bulk of heroin from Manchukuo finds its way to America. The report states "the fact is now beyond dispute that the world source of illicit white drugs is China north of the Wall and for some distance south of it." These areas are nominally under Japanese jurisdiction, but it appears that the trade in opium and heroin is an open business concern and is not considered to be illegal. It is alleged that ships' personnel and passengers can buy a kilo of heroin in Tientsin for 5,000 francs and sell it at Port Said and Suez to purchasers for 12,000 francs; these again dispose of it at great profit to themselves. The urgent need for better port control is stressed. Bumboatmen, cargo workers, etc., who await the arrival of ships, are potential smugglers. As there are some 400 or 500 vessels arriving every month, many of which are from suspect ports in China, India, and the Persian Gulf (three-fourths of which carry oriental crews), the peril of world-wide distribution of narcotics from this centre is evident. These facts, Russell urges, must be boldly stated at Geneva, and the co-operation of Great Britain, the United States, and other countries concerned sought for and secured if any real advance is to be made in the suppression of illicit traffic.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been prepared and will be ready shortly; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or all of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Finance Department, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

ANAESTHESIA IN GENERAL PRACTICE

This is one of a series of articles, contributed by invitation

CHOICE OF ANAESTHETIC IN GENERAL PRACTICE

BY

HELEN LUKIS, M.D.

The choice of anaesthetic in general practice does not, of course, differ in essentials from the similar problem in hospital, and the main guides must be the nature of the operation, the idiosyncrasies of the patient, and the skill and individual preferences of the administrator. There are, however, certain difficulties, specific to general practice, which make some of the newer methods impracticable for the family doctor. The general nature of his work, which makes him a man who is expected to know something about everything, makes it impossible for him to know everything about any subject, and the mastery of a special technique may require more study, time, and experience than he is able to spare. He may not give an anaesthetic for several weeks on end, and then be called upon to give a series; at least 60 per cent. of his cases will consist of dental gases and minor operations, while 50 per cent. of the remainder will be emergency cases in which there are so many other details to arrange (it is not unusual for the doubtful acute abdomen and the surgeon to arrive at the nursing home together) that there is very little time for complications of anaesthetic technique.

Time is an all-important factor, because a day is not, unfortunately, infinitely elastic, and the one or two hours required for an operation can perhaps only be done by leaving undone something which ought to have been done; any technique, therefore, which necessitates prolonged preparation, visiting at a specified time beforehand, or an extension of operative time must be considered not only in relation to the patient but with regard to the needs of other sick people.

The general practitioner's close personal relationship to his patient makes it essential that he shall not use methods too experimental, too dangerous, or too unusual, while the peripatetic nature of his work makes portability a consideration. He lacks adequate storage space, so that bulk is undesirable, and his chronic lack of skilled assistance makes it important that the apparatus should not require elaborate upkeep; rust, the perishability of rubber, the insidious passage of time, and the limited space at his disposal make it necessary to exercise a rigorous economy over the apparatus he has to maintain. His ideal anaesthetic, therefore, should be 100 per cent. safe; easily portable; not so complicated that it takes time to assemble or requires prolonged pre-operative attention; not liable to be found out of order after three or four months' disuse; neither taking up too much room, nor requiring stores of spare parts, nor liable to run out in the middle of an operation; not too expensive, and as pleasant as possible to the patient. Bearing these considerations in mind, the actual choice of anaesthetic may be discussed under the headings: (1) local anaesthesia; and (2) general anaesthesia—non-inhalational and inhalational.

Local Anaesthesia

Local anaesthesia would appear to offer many advantages: the difficulty of obtaining a second doctor on, say, a fine Sunday makes any method which would enable one to operate single-handed in an emergency worthy of consideration.

Superficial local anaesthesia is achieved by spraying or plugging with the chosen solution, or by freezing. The former method is applied chiefly to the mucous membranes: it is the anaesthetic of choice in most ophthalmic operations, except glaucoma and excision, and in most nasal operations. It is possible in a fairly stoical adult to perform a myringotomy under 20 per cent. cocaine and adrenaline, while the application of novocain to a cut surface makes suturing almost painless if a fine needle is used. Anaesthesia from freezing is of so short a duration that it is only available for a limited number of operations, such as the incision of superficial abscesses.

Injections of novocain or allied substances have the advantages that the anaesthesia is of a longer duration than gas or ethyl chloride in minor operations, no second doctor is required, there are none of the pre- or post-operative problems connected with the unconscious patient, there is greater safety, and the addition of adrenaline makes the field of operation relatively bloodless. On the other hand there are certain disadvantages. Neurotic, frightened, or hysterical patients, and young children do not react well to the thought of consciousness during an operation; a considerable number of people show more or less serious idiosyncrasies; sepsis, which constitutes the greater part of the minor surgery of general practice, is a definite contraindication; and the range of anaesthesia is rather limited unless the drugs are used in great bulk (which presents problems of sterilization and skilled assistance) and by regional infiltration of the nerves supplying the part, which demands specialized anatomical knowledge which, to quote the national health insurance regulations, "general practitioners as a class cannot be expected to possess." The principal value of regional anaesthesia is in affections of the terminal phalanges (paronychia, whitlow, foreign body, etc.); the digital nerves can easily be blocked by 2 per cent. novocain injected at either side of the first phalanx at the level of the web between the fingers.

Böhler's method of reducing fractures by the injection of 20 to 40 c.cm. of 2 per cent. novocain into the haematoma is very tempting, but the difficulties of exact localization of the fracture and of sterilizing and keeping sterile such a large quantity of solution without a trained and skilled assistant are very great.

Spinal anaesthesia presents enormous difficulties to the occasional anaesthetist, who has so few opportunities of practising its technique, and should, in my opinion, be left entirely to the specialist.

Non-inhalational General Anaesthesia

Non-inhalational general anaesthesia may be administered rectally or intravenously. Rectal administration is, without question, one of the pleasantest ways of inducing narcosis; the drug can be given as a simple enema to an unknowing patient, who falls asleep and wakes up many hours later without any consciousness of having been operated upon. The method cannot be used in diseases of the rectum or anus, and may set up an acute colitis.

Avertin, the drug most commonly used, appears to come in safety between chloroform and ether. In doses guaranteed to produce surgical anaesthesia it is more dangerous, and it frequently, therefore, requires additional inhalation anaesthesia. The apparatus is bulky, breakable, and awkward to pack; it requires elaborate and somewhat complicated calculations of dosage, takes up a full hour of pre-operative time, and the patient requires four to twenty-four hours of close post-operative attention. It must be heated to 37° C. and not over 40° C., cannot be prepared more than an hour before the operation, nor, under general practice conditions, can its administration be left to an assistant: in short, it is an invaluable weapon in the hands of a specialist and a very dangerous one in those of the family doctor.

Intravenous anaesthesia is dramatically quick in onset; there is no mask or feeling of suffocation, and post-operative gastric and pulmonary complications are rare. Veins are hard to find in children, the fat, and shocked or exsanguinated cases, and the duration of both surgical anaesthesia and post-operative coma are very variable. Nembutal has been extensively used, but hardly seems safe enough for the family doctor. One drug, however—evipan sodium—is to the general practitioner what avertin is to the specialist. Used in the doses recommended for minor operations, when 10 c.cm. is rarely exceeded, this drug is almost 100 per cent. safe; its efficiency is only limited by the difficulties of intravenous medication; it is very pleasant to take, keeps well, and requires very little pre-operative time. The apparatus required is:

10 c.cm. syringe, kept sterile in ether.

Two intravenous needles, kept sterile in ether.

Package of evipan containing ampoules of the drug and distilled water.

A file.

A rubber catheter or tourniquet.

A small dressing, two swabs, a bandage.

A mouth prop or gag.

The ether can be used to sterilize the skin, and the needles will not rust as they do if kept in spirit.

The freshly made solution of the drug is injected slowly into the vein while the patient counts: when he stops the amount given is noted, and as much again is inserted.

Evipan produces an ideal anaesthesia for many of the minor operations of general practice, such as dental extractions, fractures, acute septic infections, etc., because the patient has one to two hours' post-operative sleep, which is very valuable in these painful conditions. There is often, however, a period of semi-intoxication, which makes the drug entirely unsuited for use in the consulting room or dentist's surgery.

Inhalational Anaesthesia

It will appear from the foregoing remarks that some kind of inhalational anaesthesia will be the general practitioner's choice in most cases, and the decision will rest between gas and ethyl chloride for short operations, and between gas and oxygen, chloroform, and ether for the more prolonged ones.

The advantages and disadvantages of nitrous oxide are too well known to need any discussion, but many do not realize the value of ethyl chloride for the minor operations of general practice. It is easily portable, gives an anaesthesia lasting about twice as long as that from a single dose of nitrous oxide, is so rapid in action that difficult patients such as struggling children are anaesthetized in a couple of breaths, and recovery is sufficiently rapid to make it suitable for consulting-room use. The most diverse opinions are held about its safety, but American authorities put the mortality at about 1 in 13,365 cases. It may be given on an open mask, when the dosage is difficult to control, but I prefer to give from 3 to 5 c.cm. in a closed bag. The face-piece is slowly approximated to the face while the child counts or talks, and anaesthesia usually supervenes without any struggling or distress. When the breathing becomes stertorous the face-piece is removed and the operation performed. Ethyl chloride is not suitable for continuous administration, and nearly all the fatalities have followed attempts to prolong the anaesthesia by giving supplementary doses.

Gas and oxygen is, of course, the ideal anaesthetic from one point of view, because it is the nearest approach to 100 per cent. safety we possess. It has unfortunately, however, great drawbacks. The apparatus is costly and bulky, liable to mechanical breakdowns, and requires constant and careful maintenance to keep it in working order. While many of us are fortunate enough to have the use of an apparatus at our cottage hospital, we are reduced to chloroform or ether for the majority of our cases outside.

If only chloroform were safe it would be the ideal anaesthetic for general practice. It is the most easily portable and least bulky of all the available drugs; it never fails to anaesthetize, is far more pleasant than ether, is non-inflammable, and gives a delightful, quiet, and uncongested sleep. Operations such as tonsillectomy and large-scale dental extractions, for example, which may be a shambles under ether, are a delight under chloroform. Nevertheless, the fact remains that figures collected by hundreds of different observers under all sorts of different conditions show that there is a steady mortality of 1 in 3,000 with this drug, and that this mortality tends to be of that most heartbreaking type—that is, the unexpected case—the apparently healthy young adult who snuffs out under some comparatively trivial operation such as circumcision or tonsillectomy.

Ether is probably rather more than twice as safe as chloroform. In addition, its victims are much more likely to be people who are bad anaesthetic risks, and whose death does not come as such a shocking tragedy, and for this reason it must remain the anaesthetic of choice for most cases. It has, however, one great and real drawback, which is its inflammability, and there will always be cases in which it cannot be used for this reason. In 208 recent confinements, for instance, there were only seven in which there was not a naked flame in the room. In forty-seven there were gas or electric fires, which could be turned out easily, and in 154 coal fires, at distances from the patient ranging from three to twelve feet. The lighting was by gas in twenty-seven instances, lamps in eleven, and candles, waved wildly by the midwife, in five. Under such conditions of lighting and heating it is a lucky general practitioner who will not have to have recourse at some times to the dangerous but very satisfying anaesthesia of chloroform.

My choice for the major operations of general practice is to induce with 5 drachms exactly of C_2E_2. A gamgee square with a large hole in the centre (a torn hole is much better than a cut one) is placed on the patient's face "to keep anything out of the eyes." The mask is held about three inches away, and the C_2E_2 is poured on drop by drop while the patient counts or talks. The mask is slowly approximated to the patient's face until it rests on the gamgee shortly before the 5 drachms of

mixture are exhausted. If the change to ether is then made slowly a smooth induction without coughing or struggling is nearly always achieved.

To sum up, then, the choice of anaesthetic in general practice will be along these lines.

Minor Operations.—Nitrous oxide, ethyl chloride, or local anaesthesia for surgery use. Evipan sodium for a patient in bed.

Major Operations.—Gas and oxygen in hospital, C_2E_3—ether sequence in general. Chloroform if close to naked flame.

NEW BLOCK AT ST. BARTHOLOMEW'S

OPENING BY QUEEN MARY

Queen Mary visited St. Bartholomew's Hospital on July 8 to open the new medical block, which is to be known as the "King George V Building," an erection of six floors, occupying the site of the old south block, with accommodation for 253 beds. The ceremony took place in a large marquee erected on one side of the hospital square adjoining the new building. Her Majesty was received on arrival by Lord Stanmore, treasurer of the hospital, the Earl of Strafford, senior almoner, and the Countess of Strafford, president of the hospital women's guild. Among those presented were Dr. Alexander Gow, senior physician, Mr. Harold Wilson, senior surgeon, Dr. George Graham, physician, Mr. W. Girling Ball, surgeon and dean of the medical college, and Miss Helen Dey, matron and superintendent of nursing.

After prayers by the Archdeacon of London, Lord Stanmore read an address recalling the history of the hospital, how for eight hundred years on that site, as its founder Rahere ordained, it had admitted the sick, the wounded, and women labouring with child. Just four hundred years ago, as a result of the Reformation, with the dissolution of the monastery whose canons, with sisters, had ministered to the spiritual and physical needs of the patients, the hospital was left almost derelict, whereupon the Mayor of London, Sir Richard Gresham, and the Aldermen and Commonalty presented a petition to Henry VIII, who in consequence refounded the institution and enabled the work of tending the sick poor to be resumed. During these last four hundred years the patients had been treated by physicians, surgeons, and nurses, whose work had added to the prestige of the hospital. Lord Stanmore recalled previous visits of Queen Mary. She had accompanied King George V in 1907 on the occasion of the opening of the out-patients' department, and in 1921 had laid the foundation stone of the nurses' home, which bore her name. (He might have added that she also came to the hospital in 1917 and distributed parcels to a number of patients who had been injured in an air raid in the locality.) He concluded by saying that the opening of this block of medical wards with the most modern equipment would enable the ancient hospital to retain the position it had always held in the forefront of the healing art and allow a larger number of patients to be treated in accordance with the highest ideals of modern medicine. The Queen then declared the new building open, and after the architect, Mr. T. A. Lodge, had been presented she proceeded to inspect the block, also visiting the British Red Cross library and the nurses' home.

The New Medical Block

Each of five floors of the building (except the ground floor, which has slightly less accommodation) is divided into two units of twenty-five beds, each unit comprising a large ward of twenty-three beds and two single-bed wards. Attached to each unit also are sanitary rooms, ward kitchen, sisters' room, and linen room, and on each floor examination rooms, staff rooms, and rooms for various routine purposes. Each large ward is equipped with a sun balcony for beds facing south, and on the top of the building a solarium has been placed. The top floor contains an isolation unit of seven beds, also laboratories forming an extension of the Dunn laboratories built with the surgical block in 1930. There is also a lower ground floor with rest and common rooms for patients' friends, departments for cardiographic work, and a number of stores and offices. The equipment throughout is of the most modern type; particular attention has been given to the fittings, and as far as possible all cupboards have been built in. The building is considerably larger than the block it replaces, and careful planning has been necessary to secure maximum light and ventilation to the various rooms. The eighteenth century appearance of the hospital square, of which Bart's is legitimately proud, has been preserved by the use of Portland stone facings to the part of the building which adjoins the square, and as far as possible the old stone, used when the old building was constructed two hundred years ago, has been re-used for the purpose.

TRAVELLING FELLOWSHIPS IN TUBERCULOSIS

The Medical Research Council has awarded Dorothy Temple Cross Research Fellowships to the following candidates intending to study problems of tuberculosis at centres abroad during the academic year 1937–8:—

BRIAN CONNOR THOMPSON, M.D., Cantab., formerly Assistant Tuberculosis Officer, Durham County Council (renewal of present fellowship for three months).

RONALD HERBERT ROBERT BELSEY, M.B. Lond., F.R.C.S., Resident Surgical Officer, Hospital for Consumption and Diseases of the Chest, Brompton, London.

BRIAN MAURICE MAXWELL, M.D. Belf., Senior Assistant Medical Officer, Cheshire Joint Sanatorium, Market Drayton.

OSWALD SYDNEY TUBBS, B.Ch.Cantab., F.R.C.S., Chief Assistant to a Surgical Unit, St. Bartholomew's Hospital, London.

ENID MARY WILLIAMS, B.Sc., M.D., Wales, Assistant Lecturer in Tuberculosis, Welsh National School of Medicine, Cardiff.

The next annual meeting of the International Society of Medical Hydrology, which is open to non-members on payment of a fee of £1, will be held in Germany, at Frankfurt and the neighbouring spas, from October 17 to 22. The members of the Congress will be housed in Wiesbaden throughout, but the ceremonial opening meeting and first discussion will be held at Frankfurt. The other spas to be visited are Bad Nauheim and Bad Ems, at each of which meetings will be held, and a flying visit has been arranged to Schwalbach and Schlangenbad, on the way to Eltville, where a Rhineland vintage festival will take place. After the meeting there will be optional excursions to Kissingen, Heidelberg, Würzburg, Worms, Baden-Baden, and other places. The inclusive charge for accommodation and excursions during the meeting is RM. 85 (about £7); the party to travel from London on October 16. The subjects for discussion are (1) bioclimatology; (2) psychological factors of health resort practice (one of the openers being Dr. R. G. Gordon of Bath); and (3) natural history of peloids (moors and muds). There will also be demonstrations of laboratory and experimental work. All information may be had from the I.S.M.H., 109, Kingsway, London, W.C.2.

NEW TRAINING COLLEGE FOR CRIPPLES

THE STANMORE ENTERPRISE

A college for the training of crippled lads in useful trades has been established in association with the Royal National Orthopaedic Hospital in the ample grounds of the country branch of that institution at Stanmore. The college is to be formally opened during the present month (July) on the completion of the building, but in fact it has been functioning, though not to its full capacity, for the greater part of a year.

In this woodland country of Middlesex a very pleasing group of buildings has been put up, the lay-out of which is difficult to convey in a photograph, where one hundred male cripples between the ages of 16 and 22 will be given a chance, despite their physical disabilities, of going out into the world as self-supporting individuals. The single-story buildings, including the dormitories, have been arranged in the form of a wide arc so as to secure the maximum sunshine and air. In spite of the fact that the building is on sloping ground, there is not one step which the cripple has to mind.

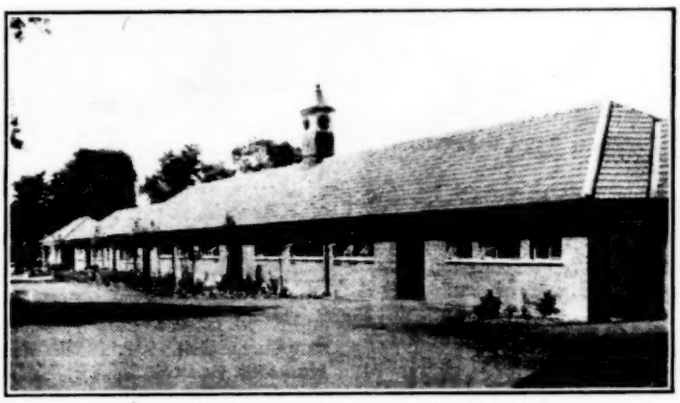

FIG. 1.—The Cripples' Training College, Stanmore.

Although it is controlled by the hospital committee and enjoys some of the hospital services, the college is quite separate from the hospital. But it must be considered a significant extension of the hospital idea that the care for the disabled should include not only their physical compensation as far as that may be possible, but the provision of training for a craft which will enable them on final discharge to meet life more or less on equal terms. The college is a new undertaking so far as the Royal National Orthopaedic Hospital is concerned, but it really continues the work of the Home for Crippled Boys, Woolsthorpe House, Wright's Lane, Kensington, which was founded in 1865 to board and lodge cripples and teach them a trade. The hospital took over this institution, with the boys actually in training, and these boys, numbering forty-eight, have formed the nucleus of the Stanmore college, which now that it is completed will accommodate 100. The cost of the new buildings has amounted to nearly £70,000.

FIG. 2.—At work in the boot-making shop.

The Course of Training

The college is approved by the Board of Education, which has authorized local authorities to pay £90 per annum for each trainee, with entitlement to the 50 per cent. grant made by the Board. The boys are generally sent to the college by local authorities or social or philanthropic organizations. In very exceptional cases they may be admitted slightly below the age of 16, but that is not favoured. The course of training covers a minimum period of three years.

The trades taught, all under expert instruction, are boot-making (surgical and ordinary) with repairs; mattress-making and upholstery; painting and sign-writing; general woodwork and cabinet-making; tailoring; and watch and clock repairing. Other trades may be included as the organization develops. A whole-time schoolmaster is employed, and the lads in classes all have an hour's general education a day. The hours of work or instruction are from 9 to 5, with an hour's interval, and then the lads are free of restraint, except that they are expected to be in by a certain hour.

Accommodation and Resources

A tour of the college proved this to be one of the pleasantest places of the kind we have ever visited. Indeed, the only drawback is that the working and domestic conditions are so cheerful and healthy that when the students eventually go out into workshops less clean and spacious and orderly, and into lodgings lacking these refinements and amenities, they will be aware of an unpleasant change in their circumstances. Nowhere is there any institutional atmosphere. The dining hall, with the flowers on its tables, would do credit to a good-class hotel. There is a recreation room, with provision for table tennis, billiards, and other games, a quiet room where even the wireless is prohibited, and a concert hall of quite surprising size, equipped with stage and accessories. The dormitories, one of them constructed with specially large open windows for lads with a tuberculous tendency, have been arranged on the most modern hygienic principles, and there is also a self-contained sick bay with six beds for cases of temporary illness; any cases of serious illness are of course sent away to hospital. There is also ample bathing provision, and some of the baths have been so designed as to facilitate lads with certain deformities getting in and out. Outdoor sports are encouraged, and the football team is by all accounts quite formidable to its opponents. A scouts troop is well supported, and amateur dramatic and debating societies have discovered much hidden talent. The first copy of the stencilled college magazine, entitled *The Trainee*, entirely produced by the pupils themselves, is a remarkable production. As for the workshops themselves, these seemed to be, from the point of view of light and hygiene and convenience, model establishments under the Factories Acts. Although the disability in the case of some of those at work was obvious, many others were working in such positions that apart from close inspection they would have been taken as physically normal.

Organization

As already stated, the fee paid on behalf of each trainee is about £90 per annum, exclusive of certain extras which have to be paid by the responsible authority, such as the payment of the trainee's fare home for two periods of holiday in the year, also the provision and repair of any surgical boots or appliances, dental plates, and spectacles, as may be found necessary, and an outfit of clothing sufficient for use for twelve months after admission. The boys on entry are examined by the college medical officer as to their suitability for training, and a probation period of three months has to be completed to the satisfaction of the general managers. The college does not guarantee to get the lads jobs when they leave, but of course every effort is made to do so, and a careful register of the after-history is kept. Out of eleven recent departures nine of the boys taken over from the Wright's Lane home had already got jobs.

In the organization and opening of the workshops the college authorities have had the advantage of the help of Mr. J. Rhaiadr Jones, of the Derwen Cripples Training College, Oswestry, founded by Dame Agnes Hunt ten years ago for cripples of both sexes, and Mr. Jones is the honorary consulting superintendent of the Stanmore college, so that the Shropshire experience is available for the Middlesex venture. Dr. C. W. Durward, assistant resident medical superintendent of the country branch of the Royal National Orthopaedic Hospital, is the medical officer of the college, and Miss Williams, matron of the hospital, its lady superintendent. The college is also fortunate in its general manager, Capt. E. K. Wood, lately of the Indian Army, whose vigour and enterprise are evidently felt in every part of the undertaking.

BEIT MEMORIAL TRUST FOR MEDICAL RESEARCH

A meeting of the trustees of the Beit Memorial Fellowships for Medical Research was held on July 9 for the election of Fellows and other business. Deep regret was expressed at the death of Sir Edwin Deller, who since 1929 had given important help in his *ex officio* trusteeship as Principal of the University of London. He is succeeded in this *ex officio* appointment by the new Principal, Mr. Herbert L. Eason. The trustees noted with pleasure the distinctions received by two members of the Advisory Board during the past year: Professor J. C. G. Ledingham's knighthood, and the award to Sir Henry Dale of a Nobel prize for medicine. The honours gained by past Fellows include the K.C.B. granted to the present secretary of the Medical Research Council, Edward Mellanby, and J. McMichael's election to the Johnston and Lawrence Research Fellowship of the Royal Society.

Election of New Fellows

The total number of Fellowships held by full-time workers during the year 1936–7 remained unchanged at twenty-four.

The following elections were made:

Fourth Year Fellowships (value £500 per annum).—Robert Percival Cook, B.Sc., Ph.D. To continue his research on cholesterol metabolism in reference to the cause of atheroma in blood vessels (Institute of Biochemistry, University of Cambridge). Stuart Lawson Cowan, B.Sc. To continue his research on the neuro-muscular transmission of nervous excitation (Department of Pharmacology, University College, London). David Ezra Green, M.Sc., Ph.D. To continue his studies on intracellular enzymes and on the influence of vitamin B on oxidation processes (Institute of Biochemistry, University of Cambridge). Maurice Jowett, D.Sc., Ph.D. To continue his study of the action of narcotic drugs on the metabolism of the central nervous system (Biochemical Laboratory, Cardiff City Mental Hos. ital).

Junior Fellowships (normal value £400 per annum).—Ian Alfred Anderson, B.Sc., M.B., B.S. Proposed research: iron analyses of diets of women of the poorer classes at Aberdeen, and studies on the treatment of anaemia (Metabolic Research Laboratory, Aberdeen Royal Infirmary). Desmond Beall, B.A., Ph.D. Proposed research: sterol metabolism, with special reference to sex hormones (Department of Pathology, British Postgraduate Medical School, Hammersmith). James Gowans Chalmers, B.Sc. Proposed research: the role of polycyclic hydrocarbons in experimental tumour production (Glasgow Royal Cancer Hospital). Frederick Colin Courtice, B.Sc., D.Phil. Proposed research: the influence of insulin and endocrine secretions on the metabolism of prolonged muscular exercise (Physiology Laboratory, University of Oxford). Hugh Davson, B.Sc. Proposed research: the cause of primary chronic glaucoma of the eye (Department of Physiology and Biochemistry, University College, London). Thaddeus Rudolph Robert Mann, M.D., Ph.D. Proposed research: on intracellular compounds of blood pigment and the metabolism of oxalic acid in mammalian tissues (Molteno Institute, University of Cambridge). Antoinette Pirie, Ph.D. Proposed research: the metabolism of filterable organisms by analysis of their enzyme systems (Institute of Biochemistry, University of Cambridge). Derek Richter, B.Sc., D.Phil. Proposed reseach: the action of adrenaline and related substances on the metabolism of individual organs (Institute of Biochemistry, University of Cambridge).

All correspondence of Fellows and candidates should be addressed to Professor T. R. Elliott, M.D., F.R.S., honorary secretary, Beit Memorial Fellowships, University College Hospital Medical School, University Street, W.C.1.

Reports of Societies

OVARIAN EXTROVERSION

At a meeting of the North of England Obstetrical and Gynaecological Society held in Newcastle-upon-Tyne on June 11, with the president, Dr. J. W. BRIDE, in the chair, Dr. K. V. BAILEY read a further note on the operation of ovarian extroversion.

Dr. Bailey said that he had read his original communication on this subject to the North of England Obstetrical and Gynaecological Society in February, 1936. He had delayed setting down his conclusions until now because of two points raised at the time—namely, the advisability of carrying out a laparotomy which was not a surgical necessity, and the lack of proof of ovulation following operation even in the successful cases. He briefly outlined again the technique of his operation. A laparotomy was performed, and a wedge, having its base at the periphery, was excised sagitally from the cystic ovary. The apex of the wedge was carried down to the region of the hilum. Sutures were then passed through the ovary in such a way as to turn the cut edges of the ovary partially inside out.

In his series of seventeen cases thirteen showed a successful result by the establishment of regular menstruation immediately following the operation, and there were four failures. Most observers would agree that in the present state of our knowledge only temporary results were likely to be achieved by endocrine injections. In spite of the unscientific optimism which had replaced unreasonable scepticism with regard to endocrine treatment, he believed that it should be tried in all cases at first. When it had failed he thought that the operation of extroversion of the ovaries should be carried out, provided the patient realized that a successful result could not be guaranteed.

Proof of Ovulation

The regularity with which menstruation had followed operation in the majority of his cases strongly suggested ovulation from ovaries which certainly showed no recent or remote evidence of this at the operation. Proof of this fact, however, was not forthcoming in this series until

recently, when his third case, which had had two and a quarter years' amenorrhoea and in which there was no trace of a corpus luteum in either ovary at operation, became pregnant seven months ago. In this case regular menstruation began five weeks after operation, and continued without endocrine assistance at regular intervals of four to five weeks for two years until the advent of the present pregnancy. Ovulation, therefore, had taken place recently, and it seemed fair to assume that ovulation had occurred on other occasions since the operation. Some regular stimulus to menstruation had been present in this case (as in the other successful cases of the series) which had not been present before the operation. In his opinion this stimulus was ovulation, which could not, of course, be proved in any case unless pregnancy took place.

Dr. Bailey said that, while recognizing the inadvisability of performing a laparotomy without a thorough trial of general and endocrine treatment, he would definitely assert that this operation was justifiable both with the object of restoring normal menstruation and also improving the prospects of pregnancy, provided that all concerned were aware that a successful result could only be expected in 75 per cent. of cases.

Discussion

The PRESIDENT (Dr. Bride) said that Dr. Bailey had cleared up many of the points which were not clear in his previous communication. Mr. HARVEY EVERS (Newcastle) said that in his experience cystic ovaries were rare in secondary amenorrhoea. He mentioned a case where a whole year of endocrine therapy was necessary to produce a period. Almost at once the patient then became pregnant, and a year after the first confinement she had another baby. Dr. J. W. A. Hunter (Manchester) congratulated Dr. Bailey. He thought it disappointing that a surgical method could produce better results than endocrine treatment. He asked whether Dr. Bailey's cases were due to pituitary or to ovarian deficiency. He could not see how an ovarian operation could affect a pituitary deficiency. He asked whether any of Dr. Bailey's cases had developed dysmenorrhoea, and whether the basal metabolic rate had been taken. He thought it would be useful if such cases could be thoroughly investigated before and after the operation.

Dr. BAILEY, in reply to the president, said that the risk of the operation was small, with little bleeding at the time. He always investigated for adhesions subsequently. In his series he could feel—in most cases—cystic ovaries. The basal metabolic rate had not been estimated and examination of the endometrium had not been carried out, as all but two of this series were operated on before the publication of Kauffman's paper on the endocrine treatment of this condition. In his opinion most cases of secondary amenorrhoea were due to primary ovarian deficiency, or insensitivity of the ovary or uterus to pituitary stimuli. He agreed with Dr. Hunter about the indiscriminate application of this operation; that was why he had been sixteen months considering his cases before reading his second paper. He said that the operation should not be done except as a last resort.

Dr. WILLIAM HUNTER (Newcastle) read a short paper on two cases of rupture of the uterus and two cases of prolapse of the umbilical cord. Mr. BRYAN WILLIAMS (Liverpool) read a note on the use of prontosil in obstetrics. Mr. T. F. TODD (Manchester) discussed the relief of pain in pelvic malignancy, with special reference to the intrathecal injection of alcohol. Finally Professor FARQUHAR MURRAY read a paper on the evolution of the emergency service.

Professor Jacques Parisot of Nancy and member of the Conseil Supérieur d'Hygiène de France has been elected chairman of the Health Committee of the League of Nations in the place of Dr. Madsen of Copenhagen.

OXFORD OPHTHALMOLOGICAL CONGRESS

The Problem of Myopia

With the Master, Mr. C. G. RUSS WOOD (Oxford) in the chair, the twenty-sixth annual meeting of the Oxford Ophthalmological Congress took place on July 8 to 10 at Keble College, when a discussion on the problem of myopia was opened by Mr. N. BISHOP HARMAN and Mr. ARNOLD SORSBY.

Mr. Bishop Harman said that the myopic eye was a diseased structure, and this disease, which began in childhood, was caused and influenced by environmental factors. The school was responsible for its development in the first place, and close work later in life for the breakdown that myopes experienced. The greater incidence of myopia in girls (who did much fine work) than in boys, the effect of debilitating conditions in precipitating myopia, the significance of astigmatism as a half-way house to myopia, the greater incidence of visual defect in the poorer sections of the community, all tended to emphasize the significance of environmental factors. Evidence from Sweden showed that the introduction of an advanced system of school hygiene had reduced the incidence of myopia in that country. Mr. Bishop Harman could see little support for the theory of heredity as the determining factor in the development of myopia. In his own statistics of high myopes no family history of myopia could be obtained in 67 per cent. The incidence of the breakdown that myopes experienced in later life had a direct relation to the degree of myopia. Myopia was responsible for 3.6 per cent. of blindness in children and for a much heavier percentage in adults. The myope schools had their justification in providing for the myopic child an education from which it could benefit and which prepared it for later life.

Mr. Sorsby said that Mr. Bishop Harman's finding of a family history in 33 per cent. of his cases of high myopia was more significant than his failure to obtain such a history in 67 per cent., for it supported the view that myopia was a recessive character. The belief that myopia was caused and aggravated by environmental conditions was part of the mechanistic theories of the last century, which saw the myopic eye as an elongated structure and searched for mechanical factors to explain that elongation. Yet axial elongation as the cause of low and medium myopia had never been satisfactorily proved, and recent work by Tron seriously challenged that conception. There was no valid reason for regarding most myopia as pathological. The biomathematical approach denied the emmetropic eye as an ideal; departures from it either in the hypermetropic or myopic direction were to be regarded as biological variants. Such a conception had to face the difficulty that myopes on this distribution were in excess of the theoretical incidence. This excess was to be regarded as representing pathological myopia. The fundus lesions in myopia were not always present, even in high myopia; and the possibility of these being linked with pathological and hereditary myopia only had to be considered. That it was the pathological myope only who showed the myopic fundus changes was supported by the reports on the familial incidence of retinal detachment in myopia.

In the discussion that followed Mr. T. HENDERSON (Nottingham) argued for myopia as a stigma of constitutional weakness; Mr. WILLIAMSON-NOBLE suggested that refractive errors and eye colour tended to be inherited together; Mr. R. BEATSON HIRD (Birmingham) drew attention to adrenaline in the treatment of myopia; Mr. T. HARRISON BUTLER (Birmingham) stressed the hereditary basis of anisometropia; and Sir ARNOLD LAWSON described the symptoms of incipient progression in myopia.

Hormones and Vitamins in Ophthalmology

A paper by Sir WALTER LANGDON-BROWN on hormones and vitamins in ophthalmology critically reviewed the

present state of knowledge in these fields. Vitamin A, which was responsible for the power of the normal epithelium in withstanding infection, but had proved powerless in combating the infection itself, had now been proved a chemical organizer, for faulty development of the eyes was seen in the young of a sow deprived of vitamin A. Vitamin B_2 had been shown as responsible for a form of retrobulbar neuritis, and vitamin D played an important part in hypocalcaemia with zonular cataract. Of the ductless glands the pineal body and the pituitary had pressure effects in disease, the pituitary further influencing the eye through the thyrotropic hormone of the pars anterior, which is responsible for exophthalmos, particularly the paradoxical type seen after thyroidectomy. The ophthalmoplegia of exophthalmos was possibly also of thyrotropic origin. The adrenals played as doubtful a part in glaucoma as did the gonads in retinitis pigmentosa. A host of obscure lesions with ocular signs such as fragilitas ossium, the Laurence-Moon-Biedl syndrome, arachnodactyly, osteitis deformans, were also regarded as of endocrine origin on inconclusive evidence. The ocular lesions in diabetes were more definite, though there were difficulties in recognizing some of them clearly as diabetic. Temporary ophthalmoplegia did not seem to be so frequently seen now as in the pre-insulin days. A point of importance in the development of diabetic lesions was to recognize the change in the dietetics of diabetes that insulin had brought about.

Night Blindness

The Doyne Memorial Lecture this year, on "Night Blindness in Eye Diseases—Suggestions and Speculations," was read on behalf of the late Dr. DAVID J. WOOD (Capetown) by Dr. R. C. J. MEYER (Johannesburg), who first paid an eloquent tribute in memory of his colleague. Laying stress upon the histology of the pigment epithelium, the photo-chemical changes in the rods and cones, and the significance of vitamin A deficiency as the cause of epidemic night-blindness, the argument developed to bring out the significance of an intracellular enzyme as the initiator of the changes which lead to the building up of visual purple from vitamin A. A defect of this intracellular enzyme was to be regarded as one of the inborn errors of metabolism. It was possible that the same enzyme produced pigment pre-natally and metabolized visual purple post-natally. The reported treatment of retinitis pigmentosa by carotene, the precursor of vitamin A, was but one indication of the possibilities which must await a fuller understanding of the chemical processes involved.

Other Papers

Among other papers read at the Congress there was a profusely illustrated discourse on plastic surgery of the eyelids by Professor JOSEPH IMRE (Budapest), and an account by Dr. J. DALLOS (Budapest) on the principles underlying the fitting of contact lenses so that they could be tolerated for practically constant wear. Dr. A. J. BEDDELL (Albany, N.Y.) showed a series of highly successful colour photographs of the fundus oculi, and Mr. TUDOR THOMAS (Cardiff) described two modifications in the technique of corneal grafting, one being the discontinuance of the use of oil for the reception of the graft, and the other a new method of tying the sutures holding the graft in position.

The first *Catalogue of British Medical Films*, published by the British Film Institute and noted in these columns (February 22, 1936, p. 378) listed some four hundred films. A *Supplementary Catalogue* has now been issued in which details are given of about a hundred further films. They are classified and described under general headings, and there is in addition a subject index. The number and variety of purely medical and surgical films catalogued gives some indication of the rapid extension of this branch of cinematography within recent years.

Local News

INDIA

Proposed India League of Health

Lord Horder gave a luncheon party last week at Claridge's Hotel, London, to meet the High Commissioner for India (Sir Firoz Khan Noon) and representatives of the Councils of the People's League of Health to commend a project for the establishment of an All-India League of Health on lines analogous to the organization in Great Britain. The possibility of placing at the disposal of the people of India the knowledge gathered and co-ordinated by the People's League of Health, said Lord Horder, was first mooted in 1925, when Major-General J. B. Smith, then Medical Adviser to the Secretary of State for India, expressed the view that such a body would be of much value to the Indian Empire. The present time was felt to be an opportune one to explore the possibilities of establishing a sister body in India which might collaborate with the League in making the people of the Indian Empire "health-conscious," and thereby the better able to fulfil the duties of citizenship which were now being entrusted to them. Although the League had the sympathy and encouragement of the Minister of Health and of other Government Departments, it was a voluntary body. In a highly individualized society there existed a mass of expert knowledge, resident in trained and responsible men and women, which needed mobilizing in the interest of the community. To do this and to make this knowledge available for the people by the way of health education was the work of the League. "We venture to think that a similar body, having similar functions, may be of equal service to the people of India." Brief speeches were then made on different aspects of the work of the League by Dr. C. O. Hawthorne, its chairman of council; Dr. P. Manson-Bahr, who spoke on the triumphs of tropical medicine; Professor J. C. Drummond and Dr. Harriette Chick, who spoke on nutrition; Sir Frederick Hobday, who explained the importance of the work done by the veterinary council of the League; and Professor James Young, who described an investigation now taking place under the League's auspices on the nutrition of expectant and nursing mothers. The High Commissioner congratulated the League on having a worker like Miss Nethersole. India, he said, had reached a stage where she was able to co-operate in matters of public health and medical research with scientists in this country for the benefit of her own people. He mentioned various achievements which had already taken place, notably the elimination of cholera from the Punjab. The great difficulty was the poverty of the people. The urgency and importance of health problems was very much in the minds of the legislators; they were doing their utmost to solve them as far as finances allowed, and they would be indeed grateful for the offer of expert help which was now being made.

On the motion of Lord Horder a resolution was carried to the effect that the time had arrived when an appeal should be made to the people of India, with the sympathy of the Indian Ministries of Health and other social organizations, to co-ordinate the health work already being done in India on an all-India basis under an Indian League of Health on the lines of the People's League of Health in Great Britain. A further resolution requested the High Commissioner to convey to the authorities the offer of the People's League of Health to place at the service of India the combined knowledge of its Medical, Science, and Veterinary Councils as also its co-operation in every respect, to make the Indian League of Health a success.

The Kashmir Mission Hospital

In 1936 the Church Missionary Hospital in Kashmir received 2,383 in-patients; there were 3,976 surgical operations and the attendances totalled 39,500. Entropion and trichiasis have much decreased during recent years, probably in consequence of patients coming for treatment more readily in the early stages of trachoma. The reduced incidence in the case of this hospital is also partly explained by the greater number now of State dispensaries for these patients. There were fewer cases of kangriburn epithelioma, and the reason given in the annual report for 1937 of this institution is that dress reform in Kashmir has led to the superseding of a loose garment resembling a night-shirt by a closer-fitting coat, waistcoat, and shirt, which prevent the krangi from being hugged close to the skin, at any rate in the daytime. Heart disease, more especially involving the mitral valve, is still common, and there are more cases of incompetence than of stenosis. Massive doses of digitalis sometimes proved to be dramatically effective. Cases of bone disease were also common, and caused difficulties of accommodation owing to the usually long in-patient treatment generally necessitated. These patients had had long periods of treatment with ointments by unqualified native practitioners, and very often sequestra had to be removed or amputation be performed. Financial difficulties, owing in some cases to temporary and non-recurring emergencies, have been considerable this last year, and Dr. E. F. Neve appeals for increased assistance for this hospital, which was one of the first in India to adopt Listerian antisepsis wholeheartedly. Situated outside the city of Srinagar, there is a great influx of poverty-stricken patients from the whole of Kashmir.

ENGLAND AND WALES

Qualifications of Coroners

The London County Council, which for many years has made a practice of appointing as coroners only persons with a double qualification, both legal and medical, has decided to fall in with the recommendation of the Departmental Committee that in future only solicitors or barristers should be appointed as coroners, but that whenever possible they should have had experience as deputy coroners. Before making a recommendation to this effect the Public Control Committee of the Council received representations from the British Medical Association against the proposal, and subsequently heard the views of deputations from the Association, the General Medical Council, the Law Society, and the General Council of the Bar. The Public Control Committee reported that in its view there was no doubt that the past practice of the Council of requiring both a legal and a medical qualification had restricted the field of candidates. In 1919, when candidates were required to possess only one or other of the prescribed qualifications, there were forty-three applications. On the basis of the dual qualification this number was reduced to twenty, fourteen, and sixteen respectively on the occurrence of the three succeeding vacancies. Apart from this, it was felt that regard must be had to the findings of the Departmental Committee in this respect, "and the representations made to us by the British Medical Association on the subject have not changed our view." Section I of the Coroners (Amendment) Act, 1926, stipulates that no person shall be qualified to be appointed a county coroner unless he is a barrister, solicitor, or legally qualified medical practitioner, of not less than five years' standing in his profession, provided that no person who has been a franchise coroner or a deputy to a county or borough coroner shall by reason of this provision be disqualified from being appointed to be a county or borough coroner. The resolution as adopted by the Council states that no person shall be eligible for appointment as coroner in the County of London unless he is a barrister or solicitor or possesses one of the qualifications required by the above section, and that in the choice of persons for such appointments due weight shall be given to experience as deputy coroners and to the possession of a knowledge of forensic medicine. It is pointed out that effect has already been given by the Council to many of the recommendations in the Departmental Committee's report. For example, with regard to the recommendation that post-mortem examinations ordered by coroners should be made by special pathologists, for many years past a panel containing the names of skilled pathologists has been kept by the Council for the use of coroners. Provision is contained in the schedule of fees made by the Council for fees not exceeding seven guineas to be paid to expert pathologists and toxicologists for special examinations in response to requests made by coroners. The schedule also makes provision for the payment of a fee of half a guinea to a medical practitioner who attended the deceased and from whom the coroner asks for a report.

The Health Congress in Birmingham

Representatives from all parts of the world have assembled in Birmingham this week for the health congress held there by the Royal Sanitary Institute. The delegates include representatives from China, Colombia, Germany, Guatemala, Iran, Liberia, Luxembourg, Rumania, Siam, and the United States of America, and from practically every British Dominion and Colony. Delegates have also been appointed by a large number of local authorities, Government Departments, and learned societies in Great Britain. The president, Lord Dudley, gave his inaugural address on Monday, and the Minister of Health, Sir Kingsley Wood, addressed a general session on Tuesday. Sir Arthur MacNalty, Chief Medical Officer of the Ministry of Health, is the president of the Preventive Medicine Section, in which the development of the maternity service has been discussed. Mr. Geoffrey Shakespeare, M.P., has addressed the Section of Maternity, Child Welfare, and School Hygiene, which discussed on Thursday the care of the pre-school child. Papers dealing with meat inspection and the protection of the milk supply have been discussed in the Veterinary Hygiene Section. In addition there are Sections on National Health Insurance, Hygiene in Industry, and Sewage Disposal, and also a Section on Tropical Hygiene for the visitors from over-seas.

West London Medico-Chirurgical Society

The fifty-fifth annual dinner of the West London Medico-Chirurgical Society was held at the Trocadero Restaurant on July 7, under the presidency of Mr. Neil Sinclair. In proposing the toast of "The Society," Sir Gervais Rentoul, K.C., pointed out that the area of his jurisdiction covered West London, and therefore his contacts with members of the Society were many. He drew an amusing distinction between the doctor, who in public was always praised, and the lawyer, who was always reviled, suggesting mildly that in private the reverse might hold. He paid a tribute to the Society for the way in which it had helped to maintain "the high standards of a very great profession." In responding to the toast, Mr. Neil Sinclair sketched briefly the progress made during the year. There was a record number of new members, the Society had moved into its new headquarters, a large number of meetings had been held, and a particularly successful Cavendish lecture had been delivered by Sir Walter Langdon-Brown. The president conveyed the thanks of the Society to the honorary secretaries, Dr. W. K. McKinstry and Mr. A. Simpson-Smith, for the work they had done. In proposing the toast of "The Guests and Kindred Societies," Mr. V. B. Green-Armytage mentioned the many distinguished medical societies represented there by their presidents, and he made a special reference to the late Sir Squire Sprigge, who, he said, was once an honoured

member of the West London Medico-Chirurgical Society. In replying, Sir Walter Langdon-Brown discussed the work of Henry Cavendish, which had been described as a triumph of the third place of decimals, particularly from the point of view of the part played by imagination in scientific medicine. Sir William Willcox, president of the Medical Society of London, who also responded on behalf of the guests, paid a further tribute to the West London Medico-Chirurgical Society, which, he said, was fortunate in having among its members so many general practitioners.

Silicosis in Miners and Quarrymen

The Medical Research Council's Committee on Pulmonary Diseases is planning a comprehensive investigation of the incidence of silicosis and other pulmonary diseases in miners. The executive council of the South Wales Miners' Federation has agreed to co-operate in the inquiry, which will involve the medical and radiological examination of a large number of men employed at selected collieries. At the same time a clinic established last year by the King Edward VII Welsh National Memorial Association is continuing work on the prevalence of silicosis and tuberculosis among the quarry workers at Blaenau Festiniog. In an interview reported in the *Manchester Guardian* Dr. J. W. Morris, medical officer of health for this area, suggested that since the adoption of rock drilling by compressed air machinery underground the number of quarrymen suffering from silicosis had substantially increased. The men engaged on this work were supplied with masks, but he thought that they did not all wear them. For reducing the prevalence of silicosis among these workers he thought that a better system of ventilation was necessary to draw the dust from the rock-face, and the wearing of masks should be made compulsory.

Health of the Port of London

On Saturday, July 10, a number of medical men were entertained by Mr. Alfred Robertson, chairman of the Port of London Health Committee of the Corporation of the City of London, on board the Port of London Authority's steam yacht *St. Katharine*. The members of the committee and guests assembled at Tower Pier and embarked at 10 a.m., and had a most interesting trip to the lower reaches of the Thames, arriving at Gravesend in time for a luncheon party on board. Dr. P. G. Stock, proposing the toast of the Lord Mayor and Corporation, said that few people realized the magnitude and efficiency of the organization of the Port of London health service. Alderman Sir John Laurie, in reply, acknowledged the support given by the Ministry of Health in this work, and said that the motto of the committee was "Deeds, not Words." Mr. Fred Whittingham expressed thanks to the Port of London Authority for its courtesy in lending the yacht for this annual inspection, and Mr. A. Binns, chief engineer, replied on behalf of the P.L.A. Mr. Alfred Robertson proposed a comprehensive toast to his guests, coupling with it the names of Mr. E. G. Culpin of the L.C.C., Sir Robert Stanton Woods, and the Mayor of Gravesend. Sir Robert expressed his admiration for the smooth running of all the work of the City Corporation, and in particular for its wonderful sanitary organization which kept the biggest port in the world free from disease. The speeches ended with a very warm tribute to Mr. Robertson from his predecessor in the chair of the Port Health Committee, who described him as essentially a practical man; and the chairman thanked Dr. C. F. White, M.O.H. for the Port of London, for all he had done to make the day's work and pleasure a success. The company then went on board the hulk *Hygeia*, from which all incoming vessels are inspected by the port medical staff, and spent an hour ashore at the isolation hospital at Denton, returning to Tower Bridge by river in the *St. Katharine*.

Testimonial to Dr. F. W. Eurich

After being in practice as a consulting physician for over thirty years and for twenty-four years professor of medical jurisprudence at Leeds University, Dr. F. W. Eurich has intimated his intention to retire from practice. The very large number of colleagues who, during the long period of Dr. Eurich's work have sought his aid in the treatment of their patients, including in many cases themselves and their relatives, wish to give some small indication of the great esteem in which he is held by all who know him. It is proposed that subscriptions, limited to one guinea, should be invited from all medical practitioners who have been associated with Dr. Eurich, and it is intended to present this token of esteem at a dinner to be held at 8 p.m. on Wednesday, September 29, at the Midland Hotel, Bradford. (Charge 10s. 6d. exclusive of wines.) Any medical practitioner wishing to subscribe to the testimonial or be present at the dinner is invited to send a remittance to Dr. F. E. Chester Williams, hon. secretary, Bradford Medico-Chirurgical Society, or Dr. Geoffrey Priestman, hon. secretary, Bradford Division, British Medical Association.

SCOTLAND

Health Problems of Edinburgh

The annual report by Dr. John Guy, medical officer of health for the city of Edinburgh, shows that the death rate in Edinburgh for 1936 was 13.4 per 1,000, an increase over the 15.3 of 1935. The report refers to the average death rate for the preceding five years. Births had numbered 7,391, or 15.9 per 1,000, which was an increase over the 15.3 of 1935. The report refers to the difficulty experienced in staffing the general municipal hospitals, which had retarded any effort to shorten the hours of duty of the existing staff. This difficulty applied particularly to the staffing of hospitals for chronic sick patients, but was a common experience of all the hospitals in the country. Attention is drawn to the fact that the actual number of females in the 20–25 years age group of the population has diminished, and this is suggested as a partial explanation of the difficulty in obtaining probationer nurses. The importance of mental examination of delinquent children is emphasized in the report, which points out that no legal provision exists for the mentally defective child under the age of 5 years, and while most of these are best treated in their own home, there is a proportion for whom some form of institutional care is imperative. Accordingly, the Public Health Committee has set aside in Gogarburn institution a block of twenty cots to which uncertified children may be admitted.

At a meeting of the Public Health Committee of Edinburgh Town Council on July 1 a proposal was made to abolish fees for treatment in the municipal general hospitals, but it was decided to continue charging those patients who were able to pay. One speaker said that while the English Act of 1929 compelled municipal hospitals to charge, in Scotland the provision was that they might charge patients. In Edinburgh they had resolved that if a patient could pay he would be expected to do so, but that the limit charge would be 25s. per week. There was a waiting list of 3,000 for the Royal Infirmary, of whom 1,000 were Edinburgh ratepayers entitled to claim admission to a municipal general hospital. The provision of a new hospital for this number of persons would add 1s. 1d. to the rates in the £1. It would, further, have the effect of hindering not of helping the voluntary hospital. The remedy, in the speaker's view, was that the spirit of the Local Government Act should be applied in the treatment of sick poor, and all admissions to

hospitals from the Public Assistance Department should be transferred to the Public Health Department, so that these people would be treated as sick persons and not as paupers.

St. Andrews University

At the graduation ceremony of St. Andrews University on June 30 thirty-four graduands received the degrees of M.B., Ch.B., and two that of M.D. The degree of LL.D. was conferred, among others, upon Angus Macgillivray, M.D., D.Sc., and Professor A. Blyth Webster, in presenting him for the degree, said that he was a graduate of Aberdeen and had been reader in ophthalmology at the University of St. Andrews, while as assessor on the University Court since 1921 he had taken a great interest in the work of the University. The principal, Sir James Irvine, in an address to the graduands, discussed the benefits for which people attended a university. He said that it was a rare privilege to be a member of a university and have the riches of learning continually spread before them. He gratefully recognized that there was little to criticize in the daily activities of the average student, but the fact could not be ignored that a change was gradually creeping over their traditional resolute character. There was a concensus of opinion that in most universities the proportion was growing of those who passed through the university with the candid intention of having "a good time." Their intention was disguised under the pretext that a university was intended as much for the development of character as for the inculcation of knowledge, and there was a danger that minority example might degenerate into a species of minority rule. He pleaded for the University of St. Andrews to take a stand in opposition to the irresponsible tendencies of the age, and call for a revival of older and sterner standards of student duty. University life must be arduous, but it could be very happy without incurring the reproach of being frivolous. The real test of a student was found not in examination results alone, but in his choice of friends and in the way he spent his hours after the work of the day was over. Even if rules could not be formulated to control the use of leisure, there remained a hope that public spirit in the universities would frown on flaunting idleness as bad form. Graduates of a university could find many opportunities to influence their successors, and the university should take a lead in making the quest for pleasure a secondary issue and not the main objective of the student's life.

Aberdeen University Graduation

At the Aberdeen University summer graduation on July 7 Lord Meston, the chancellor, who presided, conferred 201 degrees, including that of M.D. upon six graduates, Ch.M. upon one, and M.B., Ch.B. on seventy-nine. The degree of LL.D. was conferred upon Emeritus Professor Theodore Shennan, of whom the dean of the Faculty of Law said that he had been a graduate in medicine of Edinburgh and a Fellow of the Royal College of Surgeons of Edinburgh. He had come to Aberdeen to occupy the chair of pathology in 1914 equipped with a wide pathological experience gathered in the Royal Infirmary of Edinburgh, where he was senior pathologist. During his tenure of this chair he had acted as pathologist to Aberdeen Royal Infirmary, where his experience was widely sought in medico-legal matters and other questions of importance. He had rendered valuable service to the Senatus, and from 1931 had been a member of the University Court, where his contributions to the organization of the medical school, the welfare of its students, and the care of their professional interests had been of great importance. He had been specially concerned in securing to the students one free afternoon each week for sport and athletics. The University of Aberdeen was glad to honour one who had given a large part of his life to her services and added greatly to her lustre.

Correspondence

Defective Hearing and a Deaf Persons Act

SIR,—The statistical imagination is a rare gift, by using which Mr. A. G. Wells has offered an estimate of the number of persons who would come within the scope of a Deaf Persons Act on the lines of the Blind Persons Act, 1920. Unfortunately he has not been restricted by the provisions of the Act he mentions, and is equally unhampered by the purposes hitherto set out as desirable in a Deaf Persons Bill. To be scientific and accurate he should state the kind of Deaf Persons Act to which his estimates apply.

It was the long neglect of officials and politicians concerning the duty of instructing deaf children in speech at the optimum time for its acquirement, between the ages of 2 and 5 years, which prompted the main purpose of the suggested Bill; and with this was involved discovery by requirement of early registration of deafness under a penalty; and also the power of ascertainment of fitness by compelling necessary medical examination. Again, when the usual school age was passed, to prevent a costly education being wasted, the need of training in some vocational skill was suggested as a duty.

These things can all be got in time, but would come quickly if there were a Deaf Persons Act turning the attention of councils and municipalities to the neglect of the deaf. We may accept Mr. Wells's estimate as reasonably covered in all respects by 30,000 persons coming within any educational care imposed by such an Act, remembering that a great part of their needs is already met. The other purpose in the Bill was directed to the many deaf who, like the blind, easily fall out in the whirl of life. Earlier than usual they become unemployed and unemployable. Dr. Eichholz pictures them old; "entry into the workhouse means confinement to mental solitude and isolation for the rest of their lives. Neither inmate nor staff can, as a rule, understand them or extend to them even the limited amenities of social life." Here the Blind Acts make the benefits of the Old Age Pensions Acts applicable from the age of 50 years. Apart from those deaf from an early age, and already more or less under care of the Act, any cases qualifying under such provisions would be comparatively rare.

In another statistical flight Mr. Wells claims 113,000 persons over 65 years of age, and some 35,000 noisy traders for inclusion under the proposed Act, or some 70 per cent. of his gross total. Not one-fiftieth of these numbers would ever have the slightest likelihood of recognition in any Deaf Bill which would get reasonable consideration.

A Deaf Act should be got on the Statute Book as soon as possible. The estimate of those affected directly by the Act would be 30,000 at present getting incomplete educational help but requiring full recognition and educational benefits. Later in life probably about 15,000 cases, including a majority formerly included in the first category, would appear for pension help. The greatest aid, however, would be in municipal recognition of deaf welfare as a social duty, and the many ancillary trivial ways in which a community can benefit its individuals. For the benefits in these innumerable ways the cost would be very small.—I am, etc.,

Edinburgh, July 5. JAMES KERR.

The Prevention of Constipation

SIR,—I have only just read Dr. E. M. Dimock's reply (*Journal*, June 26, p. 1336) to my letter in your issue of May 29 (p. 1134). It seems to me he does not reply to my criticisms but to some imaginary contention which I have not advanced. It is true that I quoted a distinguished and independent-minded physician as stating the views to which I, an experienced but mere journeyman of medicine, also had come; but it is no answer to my contention to say that:

"The fact that such an acute observer as Dr. Hutchison has no high opinion of the dietetic treatment of constipation is probably explicable on the grounds that the patients with constipation that he sees in his consulting practice are a selected group—selected by their severity and hypochondriasis—and are not suitable material on which to form an opinion as to the treatment of the ordinary habitual constipation which is encountered in general practice."

In remote Cornwall and in East London I at least have not come into contact with "a selected group." I still see no reason to differentiate "physiologically" between the action of a seidlitz powder, which osmotically retains a sufficient bulk of water in the alimentary canal to promote peristalsis, and the action of a substance such as fibre or psyllium seed, which absorbs and retains fluid as a colloidal property. The empiric point is that in over forty years' practice I have never found patients—needing eliminative help—who have as a result of taking mild salines, such as seidlitz powders or fruit salts, experienced the unpleasant results that Dr. Dimock in his enthusiasm for bran seems to have discovered in his patients.—I am, etc.,

London, E.1, July 7. HARRY ROBERTS.

Technique in Knee-joint Operations

SIR,—As one who believes that surgical technique has made great advances since the days of Lister, I am sorry to find so eminent a surgeon as Mr. Naughton Dunn (*Journal*, July 3, p. 34) still advocating the antiquated and barbarous practice of slopping powerful chemical antiseptics into what should be clean operation wounds. Everyone knows that it is not possible to sterilize the skin by means of chemical antiseptics. But there is a considerable amount of evidence that the application of tincture of iodine or spirit to the dry skin effects at least a superficial disinfection which is of some value as a preparation for operation. It has been shown that this effect is due almost entirely to the hyperaemia and leucocytosis produced by the application. It should be noted, however, that the skin must be dry, and that washing it with soap and water or otherwise moistening it nullifies this effect. Chemical antiseptics are general protoplasmic poisons, and it is unlikely that a smear of iodine on the moist surface of a wound has any bactericidal action unless the application is so strong that it destroys all the living cells with which it comes in contact.

The fundamental principle of the Lane technique is that skin is septic, that anything which has touched skin is septic, and that anything which has touched that thing is also contaminated. The tissues deep to the skin are normally sterile, so that if access can be obtained to them without contaminating them from outside, an operation can be conducted aseptically. Skin, therefore, must be excluded from the field of operation at once, and thereafter the only things allowed to enter a wound are untouched boiled steel, sterile swabs handled with sterile forceps, and a very few ligatures and sutures, also untouched. It is true that theoretically the passage of the knife through the skin contaminates the subcutaneous tissues. But, provided that the knife is clean and sharp, this risk is practically negligible, and Lane always insisted that the cut edges of the skin should not be irritated by chemical antiseptics, which do no good and which only damage the exposed tissue cells, increase post-operative reaction, and delay healing. Some surgeons have an almost pathetic belief in the virtues of "a spot of iodine."

No reasonable person can doubt that a sterile towel is a cleaner thing to be touched by instruments entering and leaving a wound than the dirty skin of the patient, and I cannot share Mr. Dunn's fantastic notion of micro-organisms of the skin jumping through a sterile towel as soon as it is put over them. I agree that nothing can eliminate the possibility of infection, and Lane was the first to admit that there is no such thing as absolute asepsis. But there is no question that the proper use of wound towels practically excludes the principal source of infection, and no surgeon who pretends to operate aseptically can afford to ignore this elementary precaution. The Lane technique is a method of aseptic operating which has never been surpassed and rarely equalled. It is a mass of detail, each item seemingly trivial enough in itself, but as a whole giving the greatest measure of security that has yet been achieved in surgery.—I am, etc.,

London, W.1, July 6. A. S. BLUNDELL BANKART.

PS.—Since writing the above I have read Mr. Eric Lloyd's letter in the *Journal* of July 10 (p. 87), and I would like to add that it was not I but Mr. Lloyd himself who attributed his stitch abscesses to catgut. I agree that catgut can be infected in many ways. But I gave Mr. Lloyd the credit for being the careful and conscientious surgeon that I know he is. He wears gloves, he does not handle his sutures, and I presume that he uses one of the reliable brands of catgut which is sterile and not over-hardened. Was I not justified in pointing out the one obvious source of infection which he chooses deliberately to ignore?—A. S. B. B.

Treatment of Retained Placenta

SIR,—I have read with great interest Mr. David Currie's article on retained placenta (*Journal*, July 10, p. 57). Some years ago I was foolish enough to express the opinion that manual removal of the placenta was never necessary. The following week I had to do it twice. In each case it was like separating a fly-paper from the ceiling—slow, tedious, and tiring, but quite capable of competent performance.

There appear to be several statements in Mr. Currie's article to which exception might be taken. In my view placental retention is stressed when it really is of small importance. Once the placenta has separated there ought to be little difficulty in expelling it, and the idea of removing it by hand appals me. Again, what evidence is there that irregular contractions of the uterus are caused by interference? We hear constantly of meddlesome midwifery, but we hear too little of midwifery in which somebody has not meddled in time.

The intelligent use of forceps is the chief glory of the intelligent obstetrician. There is one thing above all others that must be retained—the efficiency of the uterus. Efficiency will not be retained by refusal to interfere until the uterus is exhausted. The cases Mr. Currie has seen of contraction ring following interference are due, I suggest, to bad midwifery—that is, to failure to help the powers in time. The questions to be asked at all

stages are: "Am I still clean?" and "Am I conserving the uterus?"

It is instructive to note that so much has the meddlesome bee buzzed in Mr. Currie's bonnet that a patient bled to death for want of a hand on the fundus, but estimates of the pulse rate, measurements of the blood pressure, and calculation of the amount of blood lost appear to have been a routine. There is no need to be afraid of Credé's method, nor need to be surprised that it has yielded better results in the hands of the general practitioner, who constantly gets results comparable with those of any hospital.

I cannot understand the logic of refusing to put a hand on the fundus because it is meddling, and squirting large quantities of saline up the umbilical cord because it is scientific. If the country really wants to improve on the already excellent mortality rate let it see to it that the profession eliminates its few known black sheep and put midwifery into the hands of general practitioners who have had their tonsils out.—I am, etc.,

London, N.W.4, July 12. R. W. COCKSHUT, M.B.

Cancer of the Oesophagus

SIR,—Mr. Herbert Tilley's communication on the treatment of carcinoma of the oesophagus in the mid-thoracic region by deep *x*-ray therapy (*Journal*, June 12, p. 1199), and Mr. Steele's comments on this (June 26, p. 1338), raise many points of interest for the practising surgeon who is concerned primarily with the treatment of the individual patient. Experience of these cases has convinced me that the main obstacle to the institution of early treatment is the prevalent conviction among practitioners that no available treatment really relieves the patient's symptoms, so that the patient is not sent to hospital until the need for a gastrostomy is imminent.

The purpose of this communication is to urge that all patients with dysphagia, even intermittent, should have an oesophagoscopy as well as a barium swallow as soon as their symptoms lead them to consult a doctor. That an oesophagoscopy is essential is illustrated by one of my patients, a woman of 52, who had a normal *x*-ray appearance of her oesophagus when first seen at the medical out-patient department four months after the onset of symptoms, but when an oesophagoscopy was performed two months later a large fungating growth bleeding profusely on manipulation was discovered in the middle third of the oesophagus. It is difficult to believe that oesophagoscopy would not have revealed some abnormality earlier.

Mr. Steele states his conviction that severe malaise is a usual concomitant of deep *x*-ray treatment. This is not the general experience where modern methods by long narrow fields geometrically placed are employed daily over a period of about four weeks: indeed, Mrs. Hilton has been able to treat two of my patients as out-patients without any serious general disturbance, one patient making an hour's journey each way daily, and the other being an old lady of 76 who refused any treatment which involved entrance into a nursing home or hospital.

I have had five patients with carcinoma of the mid-thoracic region (which Dr. Levitt finds less favourable than the upper third area) treated by Mrs. Hilton in the radiotherapy department of University College Hospital during the last three and a half years. All have had swallowing restored; three, treated respectively over three years, eleven months, and seven months ago, are eating normal food normally; one, who required a gastrostomy before treatment was begun, was able to swallow comfortably for five or six months until she died; while the fifth, who was bed-ridden with arthritis, was able to swallow sufficiently to prevent the necessity for a gastrostomy, which had seemed urgently called for when treatment was begun.

If practitioners could be assured that patients with carcinoma of the oesophagus when treated by *x*-ray therapy by the exact methods elaborated by Finzi and Levitt can have the power of swallowing restored, at any rate for a time, without much constitutional disturbance, patients would be sent for diagnosis and treatment at an earlier stage; and the modest claim of Mr. Tilley and Mrs. Hilton that there is now a little more hope in the treatment of this hitherto fatal disease will have an opportunity for greater fulfilment.—I am, etc.,

London, W.1, July 11. D. J. COLLIER, F.R.C.S.

Ionization for Hay Fever

SIR,—Much has been said and written about hay fever treatment, but we should not forget that the general psychological state of the patient is a big factor. It appears to be much more prevalent now than it was before the war even. Is this due to the stress of modern life, or is it due to the continuous irritation of the mucous membrane by the fumes of the modern atmosphere? Doubtless there is a big element of nervous instability, but desensitization of the nasal mucosa will damp the fuse.

It is advisable in ionization of the nasal mucosa to let the patient hold the applicators in her nose so that she can remove them at will rather than run the risk of a panic, with consequent damage in using a headband.—I am, etc.,

London, W.1, July 5. C. HAMBLEN-THOMAS.

SIR,—The excellent letter from Dr. Adam on this subject induces me to write a further short note. My results of treatment for this year are not yet complete, but the percentage of successes are not as good as last year. Three cases showed no improvement, and it is interesting to note that in each of these the hay fever was combined with asthma. I regard this combination as giving a bad prognosis for cure. I wonder if others have had this experience? Perhaps Mr. Vlasto had the bad luck to get this combination in most of his cases. I have given calcium gluconate to all my cases this year. This rather obscures the issue, but the cure of the patient must be our first concern. The gluconate is the best form of calcium—far better than the lactate—in allergic conditions.—I am, etc.,

Guildford, July 11. T. B. JOBSON.

Benzedrine and Belladonna for Hay Fever

SIR,—I have suffered from severe hay fever for ten years. Last year I had a course of zinc ionization which merely exaggerated my symptoms, and in previous years I have tried "pollacine" without any effect. There seems to be quite a large class of persons whom it is impossible to desensitize by such injections.

This year I obtained great relief with benzedrine and belladonna. On rising in the morning I took 10 minims of tincture of belladonna in half a tumbler of water and 10 milligrammes of benzedrine. This kept me free from symptoms for the greater part of the day. I have tried both these drugs separately and find them much more efficacious when used together, although the tendency for the pupils to dilate seems greater than when belladonna is used alone. In many cases the above is too large a dose, causing an unpleasant dryness of the throat and a feeling of nervous excitement, and 5 milligrammes of

benzedrine and 7 minims of tincture of belladonna are sufficient. All unpleasant symptoms can be prevented by reducing the dose.

This treatment is not claimed as a cure, for the symptoms generally return in the evening. I have tried it on several friends, all of whom obtained great relief. A useful adjunct for very bad cases is the "benzedrine inhaler," but this alone did very little good in my case. I have only tried this treatment in a few instances, so naturally my remarks about it are tentative.—I am, etc.,

Eastbourne, July 6. R. B. HEISCH.

The One-eyed Motorist and Pilot

SIR,—One-eyed pilots who flew before a certain date somewhere in 1919 can, I understand, get an A licence but they cannot get B licences.

It is possible that one in seventy of our population have useful sight in one eye only—say, 700,000 persons. They are one-eyed and for the purposes of this letter let us consider many of them blind in one eye. They live normal lives; they walk, cycle, hunt, and drive cars; they shoot; and often do not know they are blind in one eye. Indeed some who have the defect pointed out, even proved, state they do not believe it. They think their medical advisers have been mistaken. On this point some are so emphatic that they are indeed mentally blind. What I want to know is, What are the reasons which permit them to do so much that they want except fly in the air? There are no special reasons except one—that in the very rare event of sudden loss of sight in the remaining eye they must "crash land." Even this reason could be overcome by a parachute drop. In any case they should be permitted to take this risk. This same risk is taken by one-eyed motorists, hikers, mountaineers, and it is taken in lesser degree but greater quantity by two-eyed pilots. How can we live without risk? A young patient told me this week that the increasing casualty lists in the air increased his determination to join the Air Force and made it all the more attractive to him.

Remember it is not a question of the Air Force or air services, but only that of the private flyer, flying for pleasure or to help him in his work. Flying is, after all, only motoring without the road risks. One of my two-eyed friends tells me he reads a book in his Hornet Moth when flying long distances. How little the two-eyed pilot gains when flying blind (not mentally blind)!

I therefore merely ask that one-eyed individuals should be allowed the same privileges in the air that they possess on the ground. If they are allowed to drive cars, then they should be allowed to fly. If thought desirable a higher standard of vision in the single eye might be determined upon at first or for a trial period. I entirely agree with a flying instructor who tells me that a one-eyed pilot in a cabin machine is safer than a two-eyed pilot in most types of goggles.

It intrigued me to find the other day that a certified blind person whom I found to be genuinely blind within the Blind Persons Act had been drawing blind pension for ten years, and all that time he had held a driving licence! He drives a car, rides a bicycle, and has had no accident. The case was brought to my notice by a man who had been his passenger on a journey to fetch his blind pension money. In any case he told me himself that he was too blind to read the regulations in the fine print in which they are typed! He had only one eye, but could read the number plate at 25 yards with a pocket telescopic spectacle, which of course contracted his field of vision. For it must not be forgotten that persons with really bad sight and defective fields of vision and colour blindness are allowed to drive cars if they can pass the driving tests. A normal-sighted one-eyed motorist should be safer therefore than many of these individuals.

Let us here examine the position of motorists in greater detail. We find it most extraordinary. Persons who can see 6/18 (for example, a standard number plate on a car at twenty-five yards in average illumination) may drive a car, although they may have contracted fields of vision and perhaps colour blindness. Those holding licences before 1935 need not pass a driving test; thus persons eligible for blind pension may drive a car (see Group 3 below). Any persons with 6/18 vision and contracted fields would probably not pass the test, but if they become so blind at any period after the test they may continue to drive.

Roughly the blind may be divided into three groups:

1. Those with less than 3/60 vision with glasses.
2. Those with vision between 3/60 and 6/60 with glasses, when other conditions of an intricate nature, some of great complexity, are present.
3. Those with vision up to 6/6 with glasses, with fields of vision contracted to around 10 per cent. of the fixation point.

Now Group 3 is a large one, and there must be many of these persons about. Glaucoma, which is a disease with contracted fields as an essential factor, accounts for about 10 per cent. of the blind. Other common conditions with contracted fields which might account for another 10 per cent. are optic atrophy, retinitis pigmentosa, and corrected high myopia and cataract cases that have had their operations completed satisfactorily. If, therefore, this is permitted surely the one-eyed pilots with good sight have a strong case, and I should like to see them press their claims for A licences.

Standards for One-eyed A Licence Pilots

Group	Good Eye	Other Eye
(1)	6/6 vision or 100 per cent., without glasses Normal field of vision Not colour blind	Blind Standard (Group 1 or Group 2 or Group 3)
(2)	6/9 or 90 per cent., without glasses Normal field Not colour blind	6/60 to 6/24 (with or without glasses) Field good
(3)	6/6 or 100 per cent., without glasses Normal field Normal colour vision	6/24 with correction Field good Binocular vision

Putting one-eyed A licence pilots in the air would decrease road risks, and would make other pilots more careful! It would promote aviation and its welfare (more private landing-grounds, etc.) and it would please the one-eyed individuals. It is not so much the question of "one eye *versus* intelligence" as the unintelligent pilot soon "liquidates" himself, whether he has one eye or two. There are many instances of well-known one-eyed pilots, but it is difficult to name the living ones. Wiley Post, for instance, Hinchliffe, and no doubt many others.

As I have stressed before, the difficulty of operating any standard is no easier whatever that standard may be. Revision of standards is constantly going on, but a certain amount of agitation with concrete proposals is always necessary to bring these changes about. I therefore append new standards for one-eyed A licence pilots

which I consider would meet the case, and I trust will prove acceptable. In any case it is a serious attempt to be of use in the matter.

Even in Group 3 it will be noticed that while the bad eye is below present standard required the good eye is above present necessary standard, and colour vision and fields are normal. There will always be difficult and confusing borderlines, and they could be settled by appeal as at present. This standard is not as simple as the present one, but it would be workable *at a price* which the one-eyed would be happy to pay. Somewhat similar standards if enforced for motorists would be of considerable safety value, but would prevent large numbers of motorists from driving.

If anyone, ophthalmologist or other, can see any mistakes or loopholes in this letter I should be very glad to have them pointed out.—I am, etc.,

London, W.1, June 29. J. MYLES BICKERTON, F.R.C.S.

An Obscure Case of B. coli Peritonitis

SIR,—I was much interested to read about Messrs. Wise and Gabriel's case (*Journal*, July 3, p. 34). I think one must blame the appendix as the *fons et origo* because it contained offensive pus and threadworms at the first operation. Threadworm acute appendicitis is often associated with odourless purulent fluid in the peritoneal cavity without any signs of inflammation on the outside of the appendix; in these cases infection is probably direct but blood stream infection cannot be excluded owing to the occurrence of such diseases as *B. coli* meningitis. Only a few weeks ago I removed an appendix full of threadworms and foul pus with very little peritoneal change, yet there was a large amount of odourless pus, containing pneumococci, in the peritoneal cavity. A pneumococcal empyema later delayed recovery, so there was no doubt about a blood stream infection in this case.

Having assumed that peritoneal infection could have occurred, the other difficulty is the latent period of one week; this, however, is not very unusual in post-operative peritonitis. I can recall the sudden development of signs of peritonitis 10 days after an operation for strangulated hernia, while the post-mortem examination revealed no pathology of the intestine.—I am, etc.,

Liverpool, July 5. M. J. BENNETT-JONES.

Foot-and-mouth Disease in a Man

SIR,—The following case may be worth placing on record.

In April, 1937, an auctioneer aged 24 consulted me casually for a "sore mouth." There was slight gingivitis, and there were three small bullae the size of split peas in the buccal cavity; the temperature was normal. The following day the bullae, which had become larger, were punctured by the teeth, and two fresh ones appeared; the temperature was 99.2° F. Next day there were numerous bullae and painful ulcers, and the temperature was 100.2° F.; but constitutional symptoms were surprisingly slight considering the filthy appearance of the mouth. The case was transferred to hospital, where the diagnosis of foot-and-mouth disease was confirmed. The Ministry of Agriculture were assisted in their investigations by Professor J. A. Nixon of Bristol, but up to date no trace of the infected cattle has been found.

Comparison with a case reported ten years ago is interesting. The daughter of a local farmer had only slight signs in the mouth, but there were extensive lesions of the hands; examination of the cattle in the yard brought to light early "limping" and "slobbering," and the diagnosis in three of the beasts was soon confirmed by the Ministry officials, and an extensive epidemic efficiently controlled.

A remarkable coincidence is that the late Dr. W. T. Briscoe described a local case of "human" foot-and-mouth disease over thirty years ago. I am convinced that the co-operation of the veterinary surgeons would bring to light many more cases and assist in preventing a financially serious loss to the farming community.—I am, etc.,

Chippenham, Wilts, June 17. J. HOBART NIXON, M.D.

Tests for Renal Function

SIR,—The interesting paper by Dr. C. S. D. Don in the *Journal* of July 10 (p. 54) shows a comparison of the tests for renal function and their variations. That the maximum specific gravity should be normal in certain cases of uraemia and that the phenolphthalein test should in many cases show a loss of renal function before the urea clearance test are examples. Dr. Don remarks that this failure of the tests to agree closely suggests either that they are not altogether reliable or that different renal functions are being measured.

Whether or not the tests measure different functions is a very difficult problem, although some believe they do—for example, impairment of concentrating ability showing tubular failure. I may be able, however, to mention a feature of the phenolphthalein test which must be taken into account. In a paper I contributed to the *Journal* on this test (September 29, 1917, p. 414) it was stated that Kendall had made experiments showing that want of oxygen caused destruction of the dye by the reducing substances, and also that certain cardiac diseases caused a fall in its excretion. These factors may be present in Bright's disease. It was also mentioned that in "trench" nephritis a patient with slight albuminuria but with no casts may give only an excretion of 20 per cent. in the first hour, whereas a case the urine of which is loaded with albumin and containing numerous casts may give a 50 per cent. excretion. This shows a selective action on the part of the dye.—I am, etc.,

London, W.1, July 10. A. G. AULD.

Air Raid Precautions

SIR,—One is glad to read such a sane and refreshing letter as that of Mr. Ian Fraser's in the *Journal* of July 10 (p. 90). It is an admirable review of the present position, and the suggestion of a medical committee of inquiry is an excellent one. The same cannot be said of Dr. McClean's exclusively political effort.

When I took a course of gas lectures I was not aware that I was acting as the tool of any government. I was merely trying to make myself of more use to my fellow men. I am sure that no one, in the Government or out of it, would suggest that there is any panacea against the effects of air raids, or that their prevention can be, at best, anything but a very difficult business; but that is not to say that we should give up trying unremittingly. If we can only save or relieve a small proportion of those exposed, our efforts will not have been in vain. To talk of air raid precaution schemes as being "propaganda designed to keep up the war spirit of the general population" sounds to me like utter claptrap. The war spirit simply does not exist in this country. The majority of us know only too well the horrors of war, and many of us those of gas also. What we ask is that our rulers shall arrange for us all the protection and security that is humanly possible, so that we can go peacefully about our avocations.

I admit that competitive rearmament is deplorable. But what are we to do? We were the last to come in. Others set the pace, and we perforce had to follow suit. That is the way of competition, but it is an unescapable accompaniment of the age-old principle, "Get on or get out." This applies especially to our country. We are a rich, ripe plum ready to be plucked, and our competitors will not scruple to do the necessary if we leave the orchard unprotected. In any case, Sir, cannot we stick to our briefs, and cease to "prostitute" the columns of the *Journal* with the discussion of high politics? It is a waste of valuable space in a scientific publication, and such matters should be confined to the lay press.—I am, etc.,

Shrewsbury, July 10. R. L. E. DOWNER.

SIR,—Yes, by all means let us accept Dr. W. Colquhoun's suggestion (June 26, p. 1339), and have a medical committee to "go fully into the measures adopted by the Government to protect the public." Obviously they will find, as Dr. Ian Fraser points out (July 10, p. 90), that the Government has made "no great claims at all" in this direction, and this will give the committee an opportunity themselves to make some proposals based on medical experience and knowledge. At present the Government is prepared, or is preparing, to give us all gas masks which have been proved "a protection for all known non-blistering gases," and also protective clothing against gases of the blistering kind. Against incendiary bombs it is suggested (I still quote Dr. Fraser) that "in the hour of danger" we should lay "a layer of sand on the floor of the upper rooms of our house." Finally, against high explosives, "no claims are made by the Government . . . at all"; "diffusion and scattering of the population . . . is all that is advised."

The Government clearly furnishes some suggestions—and with its usual generosity is prepared to expend unlimited funds—for the mitigation of casualties in the event of world war, but just as clearly it does not for one moment undertake to protect the people in anything that could be called an "adequate" fashion. Our Government, like all others, is mainly out to prevent war and this it, and they, propose to do by trying to win the armaments race.

We must not suppose, however, that the Government has no intelligence at all. It realizes—or at least its individual members do—as anyone with an elementary knowledge of human nature would, that world war with full use of modern methods of destruction would mean universal panic and chaos, at least in the big cities, and that this would be something which even the most highly qualified psychotherapeutic experts, backed by the police—or the police backed by the psychotherapeutic experts—would be entirely powerless to stem. Even the knowledge that people in other European cities were being bombed as well would do nothing to reassure the despairing and half-demented victims. In fact, the generalization may safely be made that if general war arrives the danger in the different districts will vary directly with the density of population. In other words, not merely from the point of view of danger to life and limb, but from that of starvation also, the Londoner will be in the worst position and the Hebridean crofter in the best.

If therefore an unbiased medical committee can be got together—and there is not a moment to lose—I would venture to suggest that one of the first items of their deliberations should be the following. Seeing that, in the event of world war, all the three kinds of bombs are certainly going to be used, and simultaneously, on the cities, had not the city dwellers better be preparing at once for the worst possibility? Had not "diffusion and scattering of the population," as hinted by the Government experts themselves, better begin now, when it can be done in something like decency and order, and not be delayed until hostilities open, when it will resolve itself into general pandemonium and a panic rush from the towns? As one who all his professional life has been pointing out that the increasing urban centralization of our times was going to lead civilization to disaster, I may end at this point by requoting the old adage, *Naturam expellas furca, tamen usque recurret*—which means that with whatever violence we attempt to drive Nature away she will always get her own back in the long run. It is "contrary to Nature" for the bulk of the population to be herded together into cities, and Nature will not be mocked in vain.

I trust that the main finding of the proposed medical committee will be that there is now nothing for it but advocacy of a general "diffusion and scattering of the population"—in fact, of a speedy return to the land—and that in this case we shall have no minority recommendations.—I am, etc.,

North Queensferry, Fife, July 10. A. J. BROCK.

*** This correspondence is now closed.—ED., *B.M.J.*

An Echo of Culloden

SIR,—Sir Arthur MacNalty, in his most interesting lecture at the National Temperance Hospital on June 24, reported in the *Journal* of July 3, refers to Dr. Archibald Cameron as "one of the most unfortunate of medical plotters." You may remember that ten years ago there was some correspondence in your columns on Dr. Cameron. I had delivered a lecture to the Brighton and Sussex Medico-Chirurgical Society on "Some Famous Medical Criminals," and in that lecture I referred to Dr. Archibald Cameron. This was reported in the *British Medical Journal* of December 4, 1926, and was followed by a strong protest from "Nomadic Doctor" against including Dr. Cameron in such a list. I at once saw I was wrong, for Dr. Cameron was a man of the very highest character. He was medical officer in charge of troops during the rebellion of 1745. He freely gave his services to the wounded of both sides, and many Hanoverians gave testimony to his humanity to them. After the Battle of Culloden he escaped to France. Most of the rebels were pardoned, but an Act of Attainder was passed excluding certain people, including Dr. Cameron. Eight years later he returned to Scotland where he was arrested, and he was hanged in London in 1753. Many even of the Hanoverians regarded his execution as judicial murder.

I received from the late Sir Dawson Williams, Editor then of our *Journal*, one of his delightful and characteristic letters from which I quote the following: "Here you are again making trouble—not this time with a much harassed Editor, but with an irate Highlander who in the eighteenth century would probably have called upon you with his claymore freshly sharpened. We have drafted an editorial note which in this century might perhaps save you."—I am, etc.,

Hove, July 9. L. A. PARRY.

"The Medical Directory"

SIR,—To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.—We are, etc.,

J. AND A. CHURCHILL, LTD.,
Publishers of the *Medical Directory*.

104, Gloucester Place, W.1,
July 12.

Obituary

JOHN TENNANT, M.D., F.R.C.S.ED.

Late Surgeon, Ulster Hospital for Women and Children

Dr. John Tennant died at Stamford, Lincolnshire, on June 23, aged 69. He came of an old and distinguished Ayrshire family, and from his early youth showed evidence of very great ability. Dux of Ayr Academy, he entered the Faculty of Arts in Edinburgh University at the early age of 17, and in his first year won the first medal and the Scott and Dunbar prize for senior Greek, and a medal for Latin. He graduated M.A. with first-class honours in classics, and then entered upon the study of medicine. During his medical course, which he completed in four years, he won many distinctions, graduating with honours in 1893. After a long spell of hospital training he settled in Belfast, where he acted as demonstrator of anatomy with Professor Symington and also gave valuable assistance to Professor Lorrain Smith in connexion with a severe outbreak of typhoid in the city. Later he specialized in gynaecology and became surgeon to the Ulster Hospital for Diseases of Women and Children.

Somewhat disappointed with his prospects in Belfast, Tennant gave up his work there and went into practice in England, first in Lincolnshire and later at St. Annes-on-Sea. As a general practitioner he was devoted to his work; his training, ability, and fine character brought him great success, and he was much beloved by his patients for his skill, his kindly sympathy, and the careful attention he gave them. He was naturally of a modest, retiring disposition, and shunned the limelight. In company he revealed a quiet genial humour, never airing his erudition, but often a half-humorous remark of his would throw fresh light on a controversial subject. He was sensitive, and disliked any coarseness of speech or rudeness in any form. I can best compare him with Chaucer's ideal of a fine gentleman:

> "He never yet no vileinye ne sayde
> In all his life unto no maner wight;
> He was a veriay perfight gentil knight."

Dr. Tennant retired from work in 1922 and returned to Belfast, his wife's native city, where he had many friends. He resumed his classical studies with great zest, and up to the time of his last illness was absorbed in the minute study of the Greek used in the Homeric poems. He was never a bookworm. He loved outdoor sports and was expert at any game he took up, such as tennis in his youth and bowls in his later years. He had been a member of the British Medical Association for forty-two years.

J. V. P.

THOMAS GILLISON, M.B., C.M.

A cable message from China records the death on June 22 of one of the oldest and most beloved of Scottish medical missionaries in the person of Thomas Gillison, who passed away at Hankow at the age of 78, after fifty-five years of devoted and unselfish labour.

Born in Baldernock in 1859, the son of a Presbyterian minister, Thomas Gillison was educated at Merchiston Castle School and Edinburgh University, and worked as a student at the famous Cowgate Dispensary of the Edinburgh Medical Mission, in company with Christie, Duncan Main, Cousland, Edwards, the Neve brothers, and others whose names are famous in medical mission history. He sailed for China in 1882 under the London Missionary Society and was appointed to Hankow, where, eleven years later, he married Dr. Elizabeth May Harris, then in charge of the Hankow Women's Mission Hospital. From that time until their recent passing away within but a few months of one another, their whole life was devoted to the service of the suffering Chinese in Central China, where the names of Dr. and Mrs. Gillison will always remain enshrined.

In 1902 Dr. Gillison, in association with Dr. P. L. McAll, founded the Hankow Union Medical College, where he not only did valuable work in training students but also translated a number of important medical text-books into Chinese, including Luff's *Chemistry* and Cunningham's *Practical Anatomy*. In 1918 the Hankow Medical College was transferred to Tsinan, to form part of the medical department of Cheeloo University. Gillison accompanied his students to Tsinan and remained there for four years, continuing his translation work and helping in the work of the medical school. The influence of his personality, and, in particular, his simplicity and rugged sincerity, made him an invaluable colleague, but his heart was always among the sick poor, and in 1922 he returned to Central China to give his services once more to the Hankow Hospital, the men's section of which now bears his name. In 1930 he retired, but the following year saw him back in China once again, and there he remained until his death, translating further books, sharing in the work of the Church, and assisting Mrs. Gillison in the conduct of a very successful dispensary. At Hankow he was joined by his eldest son and daughter—surgeon and nurse respectively—who are proving worthy successors to their parents. Dr. Gillison was decorated by the Chinese Government with the Order of the Golden Grain.

Dr. Harold Balme, former dean of the School of Medicine, Cheeloo University, writes:

One of the humblest and most lovable of men, Dr. Gillison gave himself to those in need with a generosity and abandon that will never be forgotten. One incident, characteristic of many which could be quoted about him, will serve to illustrate this point. On one occasion he showed me, rather shyly, a Chinese letter which he had received, accompanying a gift for his hospital. It ran something like this: "Dear Sir, Twenty years ago, on a terrible night in the middle of winter, you were called out in a storm to go to the help of a poor woman in labour. You went at once, although you knew quite well that the woman was far too poor to pay anything for your services. That night I was born, and from that day my mother never ceased to speak of your kindness. Now that I am able to earn money, I want to ask you to accept the fee which you ought to have had then." To Gillison that incident was just a lovely instance of a Chinaman's gratitude. To many of us it suggested a good deal more.

The death occurred on June 22 of Dr. ERNEST DEWAR CHARLES of Stanley, Co. Durham. Dr. Charles, who was only 40 years of age, was the son of Dr. John Charles of Stanley and brother of Dr. J. A. Charles, medical officer of health for Newcastle-upon-Tyne. A graduate of the Durham University College of Medicine, he qualified M.B., B.S.Dunelm in 1919, and B.Hy. and D.P.H. in 1920. He held the posts of house-physician and house-surgeon in the Royal Victoria Infirmary, Newcastle, and afterwards served on the War Pensions Committee for the

North of England area. He joined the practice of Drs. Charles, Dewar, and Benson twelve years ago, and was deputy M.O.H. for Stanley during that time. He was a vice-chairman of the Consett Division of the British Medical Association and took a keen interest in the work. He was also actively interested in the social welfare work of the district, and was chairman of the Toc H movement and of the blind welfare committee. A severe attack of rheumatic fever some years ago left permanent effects, but he was able to carry on the work of a busy practice to within seven months of his death. His ability, together with a quiet manner, gained for him the respect and esteem of all, and he will be long remembered in the district for his lovable disposition and devotion to work. Dr. Charles is survived by his wife and a son aged 12 years, with whom there is widespread sympathy in their bereavement.

Dr. JOHN ALEX. HENDERSON of Gosforth died on June 28 at the age of 46. For some years he had been a deputy regional medical officer at Newcastle-upon-Tyne under the Ministry of Health. Educated at the University of Edinburgh, he took the M.B. and Ch.B. degrees in 1915, and was for a time resident physician to the Edinburgh War Hospital at Bangour, afterwards becoming medical superintendent of the Mount Vernon Sanatorium, Barnsley. Dr. Henderson joined the British Medical Association in 1917. He contributed clinical notes to the *British Medical Journal* in 1920 and 1932 and to the *Edinburgh Medical Journal* in 1922.

Universities and Colleges

UNIVERSITY OF LONDON

Mr. R. J. Kellar, M.B., Ch.B., M.R.C.P.Ed., M.C.O.G., F.R.C.S.Ed, has been appointed from October 1, 1937, to the University Readership in Obstetrics and Gynaecology tenable at the British Postgraduate Medical School

At a meeting of the Senate held on June 23 a cordial vote of thanks was unanimously passed to Mr. H. L. Eason, M.S., F.R.C.S., for the great services which he had rendered to the University during his tenure of the office of Vice-Chancellor.

Professor L. N. G. Filon, F.R.S., and Sir Ernest Graham-Little, M.P., were reappointed members of the Court for five years from October 1.

At the meeting of the Senate on June 23 the degree of Ph.D. in Helminthology (non-clincal) was awarded to Govind Dajiba Bhalerao (London School of Hygiene and Tropical Medicine); and the degree of Ph.D. in Pathology (non-clinical) to Helen Margaret Goddard (London Hospital Medical College).

Brown Animal Sanatory Institution Committee

The Senate received the report of the Brown Animal Sanatory Institution Committee for 1936, which recorded that Mr. W. Girling Ball, F.R.C.S., had been elected chairman for 1936–7. The superintendent had continued his research on viruses on former lines, and Dr. Nathan Raw had been engaged in carrying out a research on human and bovine tuberculosis, with special reference to infections of the human body by bovine bacilli.

Address of New University Building

It has been resolved that the name of the administrative offices of the new University Building, for address purposes, shall be "University of London: the Senate House."

UNIVERSITY COLLEGE

The following awards have been made in the Faculty of Medical Sciences:

Entrance Scholarship, Margaret E. Berry. *Entrance Exhibitions*, L. N. Yhap, H. F. Melhuish. *Bayliss-Starling Memorial Scholarship* (*Physiology*), A. R. Moss. *Cluff Memorial Prize* (*Anatomy, Physiology, Pharmacology, and Chemistry*), R. E. O. Williams. *Anatomy* (Senior Course, gold medal), L. Rosen. *Physiology* (Senior Course, gold medal), A. G. Riddell.

UNIVERSITY OF LEEDS

The honorary degree of LL.D. was conferred on July 5 on John Kay Jamieson, M.B., C.M.Ed., Professor of Human Anatomy and Embryology at Trinity College, Dublin.

UNIVERSITY OF LIVERPOOL

At a meeting of the Council on July 6 Professor W. H. Wood was appointed Dean of the Faculty of Medicine for one year from September 1.

The following candidates have been approved at the examinations indicated:

M.D.—R. T. Bowes, J. L. Brown, Hilda M. Davis, D. O. Hughes, K. W. Stroude.

M.B., CH.B.—[1] [3] [4]G. E. O. Williams, [2] [3]R. R. Hughes. *Part III:* A. M. Abrahams, J. de Bastarrechea, S. Bender, D. Boyars, W. E. G. Bradford, A. Brooke Bateman, K. W. Cameron, Sheila Carmichael, L. H. Chandler, R. I. Cohen, K. A. Colenso, K. W. Evans, J. G. Fox, Constance M. Frazer, T. C. Gray, [3]A. S. Hall, Elsie O. Hughes, H. Hughes, T. S. Jones J. Kay, [3]A. T. Leggate, M. Libman, G. B. Manning, R. Marcus, Doreen M. Martin, R. S. Riley, W. A. M. Robinson, J. P. G. Rogerson, P. J. Rooney, J. M. Russell, Henrietta Sloan, A. C. Smerdon, Gwenda Vaughan, J. Wajnerowicz, Evelyn M. Williams, Margaret E. Williams, H. Zalin. *Part II:* H. G. A. Almond, H. Alstead, H. Angelman, C. T. Baynes, Patricia M. Bennett-Jones, A. L. Black, E. J. Bowmer, A. R. Bracey, D. W. Bracey, H. Braslavsky, B. H. Brindle, H. Buckley, A. E. Burton, B. Carruthers, J. L. Chisnall, [2]W. H. R. Cook, J. W. Crowther, G. H. Daglish, H. Dakin, R. B. Davies, J. Donnelly, Mary W. Gaskell, K. B. Gibson, J. Griffith, E. L. Hamm, W. J. Hay, Anne F. M. Heaney, D. R. Holden, R. S. Holgate, E. P. Houghton, G. O. Hughes, [4]D. A. Hunt, Brenda M. Jones, [4]Iola L. T. Jones, M. P. Jones, P. Jones, Helen Kay, R. J. Keating, J. C. Kee, J. C. Kitchen, E. Leather, J. M. Marchant, J. Mills, J. Moroney, A. Nachmanovitz, S. Newman, J. H. Newmark, P. J. O'Flynn, E. N. Owen, [2]R. A. C. Owen, J. L. Patton, B. I. Phillips, Hilda C. Podmore, J. G. Pritchard, W. Pritchard, [4]E. B. Riding, D. J. Roberts, G. I. Roberts, R. H. Roberts, G. M. S. Ryan, [3] [4]E. L. Salingar, G. Sanderson, Joyce M. Scholefield, [4]V. K. Summers, R. J. D. Temple, G. R. Thorpe, G. C. Tweedie, Lucy H. E. Walker, R. Watson, J. H. D. Wetherell, [4]R. H. White-Jones, A. R. Whitman, [4]A. H. Williams, [4]C. J. Williams, Gwendoline Williams, [4]I. P. Williams, Joan S. Wood, E. G. Wright, [4]G. Wynne-Griffith, M. Wynroe. *Passed in Individual Subjects:* G. L. Manson (Forensic Medicine and Toxicology), R. H. M. Stewart (Public Health). *Part I:* [4]C. D. Alergant, G. E. Badman, Frances E. Brierton, R. F. Browne, E. H. L. Cook, Margaret Edge, R. M. Evans, H. B. Forrest, [4]D. M. I. Freeman, Thelma R. Gaunt, C. M. Gregory, G. C. Griffiths, J. Harders, F. Hedley, Bessie Howarth, H. Ingham, [4]C. T. Jenkins, W. Kulke, [4]A. L. Latner, P. C. Lawson, Pearl Lyons, D. H. McCormack, [4]Sylvia Makin, Eileen E. V. Martin, R. J. Miller, G. W. H. Millington, [4]J. D. Muir, P. J. O'Flynn, R. J. Parry, J. L. Patton, Geraldine M. H. Paul, [4]Eleanor M. Pearson, L. G. Poole, A. G. Porterfield, T. Price, V. A. Rogers, C. Rowlands, H. J. Shuttleworth, C. R. Sluming, H. J. H. Soulby, W. O. Spence, Lucy M. Sutcliffe, Catherine S. Thomas, [7] [4]G. O. Thomas, Megan E. Thomas, Joan P. Thomson, G. R. Thorpe, J. N. Threlfall, [4]Olivia S. Turner, J. A. Wethered, J. H. D. Wetherell, A. G. Williams, K. M. Willis. *Passed in Individual Subjects:* J. L. Chisnall, J. A. Gillet, R. R. Knowles, Kathleen Pugh-Jones (Pharmacology and General Therapeutics).

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part B:* M. J. Brady, J. Courtney, T. D. J. O'Farrell, J. A. Ross.

D.P.H.—E. Agius, R. T. Bowes, [3]A. Dodd, Bessie Dodd, J. G. Hailwood, Joy C. Lowe, P. Somasundram, E. A. Stilon. *Part I:* G. R. Griffith, S. M. Laird, P. Somasundram.

DIPLOMA IN TROPICAL MEDICINE.—J. Yofe.

DIPLOMA IN TROPICAL HYGIENE.—G. G. Ludlam, S. H. R. Syed, Luise Wislicki.

[1] First-class honours. [2] Second-class honours. [3] Distinction in Surgery. [4] Distinction in Obstetrics and Gynaecology. [5] Distinction in Forensic Medicine and Toxicology. [6] Distinction in Public Health. [7] Distinction in Pathology. [8] Distinction in Pharmacology and General Therapeutics. [9] With distinction.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

M.D.—J. R. P. Edkins.

FINAL M.B., CH.B.—L. S. Anderson, J. C. Babbage, I. W. Ball, R. S. A. Beckett, G. H. H. Benham, Muriel L. Bennett, M. J. Blank, T. Dinsdale, J. H. Ferguson, J. H. France, Rosaline Green, A. B. Hamer, R. S. P. Hawkins, F. G. Hibbert, W. S. Holden, T. Holme, W. Ingman, Monica M. Job, Katharine I. Liebert, J. R. Monks, H. N. Osborne, Nydia E. Panton, A. F. Pearson, W. H. Purves, W. A. Robson, Nina Shtetinin, T. S. Stewart, F. Stratton, N. Whalley. *Part I* (*Forensic Medicine and Hygiene and Preventive Medicine*): N. Altham, J. N. Appleton, Muriel I. R. ApThomas, H. B. Austin, T. M. Brand, W. W. Burnett, T. E. A. Carr, J. E. Coates, A. E. David, D. B. H. Dawson, T. B. S. Dick, A. M. Dickson, G. Garmany, A. B. Hamer, K. Harrison, Kathleen

M. Henderson, A. G. Heppleston, C. P. Heywood, Barbara M. Jessel, F. A. Langley, N. Levy, L. Linnell, D. Longbottom, Jean Mason, J. C. Mellor, A. Morgan-Jones, S. Mottershead, T. H. Norton, Mary B. Oakden, Lilian P. Parry, J. K. Rowson, E. Saunsbury, M. R. Tomlinson, T. B. Whitehead, W. W. Wilson, Frances T. Wright. (*Pathology and Bacteriology*): P. N. Holmes, D. N. Kiff, Constance M. F. Lyth, J. C. Ramsden, J. F. Rickards, H. E. Thackray, E. J. Yates. (*Pharmacology*): J. G. Atherton, A. P. Bates, T. Brittain, J. B. Brownlie, E. F. Burndred, Olive I. Elkin, J. Gregory, J. E. Horocks, A. Manch, J. E. Schofield, W. P. Sweetnam, G. K. Tutton.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*Part I:* Muriel Hughes.

UNIVERSITY OF ABERDEEN

The following degrees were conferred at a graduation ceremony on July 7:

HON. LL.D.—Theodore Shennan, M.D., F.R.C.S.Ed., Emeritus Professor of Pathology in the University of Aberdeen.

M.D.—*H. W. Fullerton, *E. J. R. Leiper, Helen M. Jardine, J. Leiper, J. S. Walker, D. E. Wilson (*in absentia*).

CH. M.—*J. F. Philip.

M.B., CH.B.—†‡E. K. Cruickshank, †J. G. Macarthur, †A. Macdonald, †R. F. Macdonald, †J. A. F. McLean, †D. Matheson, †E. E. P. Murray, †A. W. Souter, A. S. Ashby, H. W. Balch, J. A. Barclay, E. B. Bright, W. M. Burgess, R. McN. Cadenhead, A. S. Cameron, Margaret D. Cameron, R. W. Catto, Margaret R. Clark, Enid M. M. Clow, A. Coull, J. B. Cruickshank, D. J. Cusiter, A. M. Davidson, D. J. Dawson, L. H. Duthie, A. H. Emslie-Smith, J. K. Farquharson, Mary I. Forbes, F. W. Fyfe, E. N. Gauld, M. S. Glassman, Jamesina Gordon, R. M. Gordon, D. Harkins, W. Herbert, E. A. Horne, J. Innes, A. Jamieson, Phyllis D. Leslie, C. M. Liddell, J. G. T. Lunn, R. J. L. MacBean, R. McDonald, J. F. Mackay, J. A. McKenzie, Jessie M. McKenzie, A. McKerlie, J. M. McKiddie, G. S. M. Mackintosh, J. M. Mair, P. Matheson, Isabel M. Mathieson, G. N. Miller, S. J. H. Miller, A. Milne, L. McD. E. Milne, Marian B. Milne, P. C. Mitchell, R. D. Monteith, J. J. T. Morrison, A. F. Murray, F. S. Rae, D. D. Reid, G. L. Ritchie, Margaret M. Robinson, J. Ross, G. Sangster, W. A. McD. Scott, W. Selbie, Jean McK. Sheach, Elizabeth M. M. Simpson, J. Slorach, W. Smith, Florence Stephen, G. A. Stephen, I. C. Stephen, H. Tatton, Hilda M. Teunon, Elsie J. Thomson, W. J. F. Treacher, G. B. Will, Isabella M. Will, S. C. Wright, A. G. B. Young.

D.P.H.—W. J. Hogg.

D.Sc.—Allan Watt Downie, M.D., Henry Edward Shortt, M.D., Lieut.-Colonel I.M.S. (*in absentia*).

* Awarded Honours for Thesis. † With second-class honours. ‡ Passed Final Medical Professional Examination with Distinction.

QUEEN'S UNIVERSITY OF BELFAST

At a meeting of the Senate held on July 2 Dr. G. C. Lowry, professor of midwifery since 1920, was appointed to the combined Chair of Midwifery and Gynaecology.

UNIVERSITY OF DUBLIN

TRINITY COLLEGE

At the later summer commencements, held on June 30, the following medical degrees were conferred:

M.D.—A. J. O'Connor, J. B. Patrick, H. T. Ryan, W. C. Sloan.

M.B., B.CH., B.A.O.—M. C. Brough, H. M. Carson, F. J. B. Convery, E. R. N. Cooke, C. Cunningham, G. C. Donald, R. W. Duncan, C. Eppel, C. J. S. Flood, E. G. Fox, J. E. Gillespie, W. Hayes, F. C. Heatley, J. C. Lambkin, G. N. MacFarlane, H. F. T. MacFetridge, J. H. Mitchell, C. Mushatt, A. D. Parsons, (*in absentia*), R. Pollock, H. FitzG. Sloan, J. A. Strong, Jasmine Taylor, R. E. Taylor, H. J. Walker, W. J. G. Warwick, M. C. Wood.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly Council meeting of the Royal College of Surgeons of England was held on July 8, with the President, Sir Cuthbert Wallace, Bt., in the chair.

Sir Cuthbert Wallace, Bt., was re-elected President. Mr. Victor Bonney was re-elected Vice-President, and Professor G. Grey Turner was elected Vice-President for the ensuing year.

Mr. C. H. Fagge, Mr. W. Sampson Handley, and Mr. C. P. G. Wakeley were admitted to the Council.

Under the Moynihan Bequest not less than three, or more than five, lectures on the results of research in its application to surgery shall be given in alternate years by a lecturer who shall be styled the Moynihan Lecturer.

Lecturers

The following lecturers were appointed for the ensuing year:

Hunterian Professors.—Mr. P. B. Ascroft, one lecture on an Experimental Study of the Surgical Treatment of Arterial Hypertension; Mr. H. J. B. Atkins, one lecture on Chronic Mastitis; Dr. J. I. Munro Black, one lecture on the Lympho-epitheliomata; Mr. R. C. Brock, one lecture on the Pathology, Diagnosis, and Treatment of Intrathoracic New Growths; Mr. Maxwell Ellis, one lecture on the Function of the Bronchial Tubes; Mr. T. Stewart Heslop, one lecture on an Experimental Study of the Neurogenic Origin of Peptic Ulceration; Mr. J. Cole Marshall, one lecture on Detachment of the Retina and the Modern Operative Treatment; Mr. T. W. Mimpriss, one lecture on the Histology and Treatment of Imperfect Descent of the Testis; Mr. Reginald T. Payne, one lecture on Cancer of the Stomach as a Surgical Problem; Mr. Harold Rogers, one lecture on the Gastroscopic Appearances of the "Normal" Gastric Mucosa and its Constitutional Variations; Mr. T. F. Todd, one lecture on Rectal Ulceration following Irradiation Treatment of Carcinoma of the Cervix (Pseudo-carcinoma of the Rectum); Mr. William E. Underwood, one lecture on Recent Observations on the Pathology of Hydronephrosis.

Arris and Gale Lecturer.—Dr. John Beattie, three lectures on subjects relating to Human Anatomy and Physiology.

Erasmus Wilson Demonstrator.—Mr. L. W. Proger, six demonstrations on the Pathological Contents of the Museum.

Arnott Demonstrator.—Mr. A. J. E. Cave, six demonstrations on the contents of the Museum.

Mr. L. W. Proger was re-elected Pathological Curator of the Museum for the ensuing year; Sir Frank Colyer was re-appointed Honorary Curator of the Odontological Collection for the ensuing year; Mr. C. J. S. Thompson was reappointed Honorary Curator of the Historical Collection.

The Hallett Prize was awarded to Alexander James Innes, and the eighth Macloghlin Scholarship to David Somerset Short of Bristol Grammar School.

Mr. Constantine Innes Pocock was appointed Charles Ryall Library Research Assistant for one year from October 1.

Dr. David Slome was reappointed as a Mackenzie Mackinnon Research Fellow.

The following assessors were appointed for the Primary Fellowship Examination to be held overseas during the coming year: Professor F. Wood-Jones and Dr. C. H. Kellaway (Melbourne); Professor A. N. St. G. Burkitt and Professor W. H. Davies (Sydney); Professor W. R. Gowland and Professor J. Malcolm (Dunedin); Lieut.-Col. F. J. Anderson, M.C., I.M.S., and Lieut.-Col. S. L. Bhatia, M.C., I.M.S. (India); Professor D. E. Derry and Professor Gleb von Anrep (Egypt).

Diplomas

A Diploma of Membership was granted to William Bradford Foster.

Diplomas were granted jointly with the Royal College of Physicians of London as follows:

DIPLOMA IN PUBLIC HEALTH.—L. J. Bacon, T. E. Jones-Davies, J. MacC. Kilpatrick, A. E. Lorenzen, C. Mani, J. N. Matthews, Doris Onions, T. B. Patel, H. E. Raeburn.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—M. B. Brody, Hilda M. Capes, Bridget Coffey, E. C. Dax, T. R. C. Fraser, J. B. Giffen, W. G. Glassco, Joan E. Greener, A. Harris, G. T. James, C. A. Keane, J. S. Knox, E. H. Larkin, A. B. Monro, K. N. H. Rizvi, K. Soddy, J. T. W. Spiridion-Kliszczewski, C. E. H. Turner, G. P. B. Whitwell.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—G. N. Barker, G. A. Fraser, K. H. Hakim, M. Jackson, J. A. Kersley, G. P. Rayen.

The Services

HONORARY PHYSICIANS TO THE KING

The King has appointed Colonel H. C. Buckley, I.M.S., and Colonel D. C. V. Fitzgerald, M.C., I.M.S., as Honorary Physicians to the King, in succession to Major-General Sir Cuthbert A. Sprawson, C.I.E., I.M.S., and Major-General C. W. F. Melville, C.B., I.M.S., who have retired.

HONORARY SURGEON TO THE KING

Surgeon Rear-Admiral F. J. Gowans, R.N., has been appointed Honorary Surgeon to the King in the vacancy caused by the retirement of Surgeon Vice-Admiral Sir R. W. Basil Hall, K.C.B., O.B.E.

HONORARY SURGEON TO THE VICEROY

Colonel S. G. S. Haughton, C.I.E., O.B.E., I.M.S., has been appointed Honorary Surgeon to the Viceroy and Governor-General of India.

Medical Notes in Parliament

In the House of Lords on July 13 the Royal Assent was given to the Physical Training and Recreation Act, the Trade Marks (Amendment) Act, and the Methylated Spirit, Sale by Retail, (Scotland) Bill. The Physical Training Bill had received a third reading on July 12. Also on July 13 the Local Government Superannuation Bill was read a second time, and the Cinematograph Films (Animals) Bill passed through committee.

In the House of Commons on July 12 Mr. Ramsbotham moved the second reading of the Milk (Amendment) Bill, which, he said, extended the Milk Act, 1934, as amended by the Act of 1936, for a further twelve months. The Bill was merely a continuing Bill, and he hoped that a policy of a more permanent and far-reaching character might have time to mature. The Bill was read a second time.

The Local Government Superannuation (Scotland) Bill passed the report stage and was read the third time in the House of Commons on July 13.

Marriage Bill

On July 7 the House of Lords went into committee on the Marriage Bill. Lord SALTOUN initiated the debate on Clause 1, which, as received from the House of Commons, provided that there should be no divorce within five years from marriage. He moved to insert the words "except as otherwise expressly provided in this Act." He said his amendment was necessary in order to make room for a subsequent amendment standing in his name. This subsequent amendment sought to enact that if one spouse, against the will of the other, refused to permit the conception or birth of a child without good reason, this should be a ground for divorce without delay.

Lord Saltoun's amendment was negatived.

Lord JESSEL moved to substitute three years for five as the period after marriage within which no petition for divorce could be presented to the High Court. A long debate followed and the amendment was eventually agreed to, and Clause 1 as amended was added to the Bill.

INSANITY AS GROUND FOR DIVORCE

On Clause 2 (Grounds of petition for divorce) the chairman, the EARL OF ONSLOW, informed the committee that he had received a manuscript amendment by Lord Dawson of Penn to substitute the words "believed to be incurable" instead of the word "incurably" in the provision of the Bill that unsoundness of mind which had been continuously under care and treatment for at least five years immediately preceding the presentation of the petition should be a ground for divorce. Before discussing Lord Dawson's amendment the committee considered one by Lord Elton to omit the subsection of Clause 2 dealing with insanity. He said this paragraph alone permitted divorce for a misfortune. The word "incurably" was a "question-begging" epithet, and he assumed that Lord Dawson in his manuscript amendment recognized that it was very difficult to maintain the word "incurably." The tendency of modern psychology was towards recognizing that scarcely any mental disease should be regarded as incurable. The Bill would pronounce a final sentence that the sufferer would have no hope of being cured. It was wrong that there should hang over the dark approaches of insanity a threat that if the worst should fall the sufferer would be stripped of all he valued most.

The ARCHBISHOP OF CANTERBURY supported the amendment. He imagined Lord Dawson had accepted the fact that they could not really speak of mental disease as being incurable. The adoption of the clause would result in retarding the recovery of those who were curable, and would sometimes upset the balance of those who were liable to become insane.

Lord DARCY DE KNAYTH pointed out that the report of the Royal Commission recommended that incurable insanity could only be a ground for divorce when the age of the insane person was, if a woman, not over 50, and if a man, not over 60 years. The last recommendation would exclude cases of senile dementia. There was nothing to that effect in the Bill.

MEDICAL OPINION

Lord DAWSON OF PENN said if there were not differences between experts there would be no progress in the world. It was a mistake to suppose that medical experts always differed. On essential subjects there was more general agreement in the medical profession than in any other. It was common ground that this particular group of cases demanded merciful consideration because in most instances the matter was not one of fault but of misfortune. That statement was not true in the case of chronic alcoholism producing dementia or in the case of syphilis, but broadly speaking misfortune came into the question of insanity more than into the question of adultery and cruelty. Speeches had been made from which one would think there was no suffering partner in the case of insanity, but anyone who had an opportunity of studying insanity in the homes would often conclude that far more sympathy was to be extended to the suffering spouse who felt acutely than to the patient who felt less acutely.

The proposed ground for divorce in Clause 2 could not be considered without regard to Clause 3, which provided that the insane patient must have had continuous treatment in some institution for five years. That was a great protection. A fair consensus of opinion was that the majority of patients who had been under continuous treatment for five years did not recover. To assert that anything in the world was incurable was not a wise statement from a scientific man, and he would propose to substitute "one who is believed to be incurable." In the first year of treatment for insanity the prospects were very good. There was a big drop in the prospects between one year and two years, and between three and four a greater drop. After five years the number who recovered was very small. Was it not the duty of that House to say, in justice to the suffering spouse, that after five years, when the prospects of recovery for the patient were so small, that spouse should have a chance of relief? It was not made compulsory. It should be remembered that the majority of people with whom the Bill was concerned lived in houses of only a few rooms, and therefore in cases of cruelty or insanity, whether caused by drunkenness or drug addiction, the hardship pressed more heavily.

The five-year clause had been put in the Bill after advice from experts, and that advice was right. Cases of shell-shock in the war were on a totally different footing from cases of insanity which resulted from organic and structural disease. For example, there had never been a case when the arteries of a man, which were getting harder and harder, had recovered. Similarly, there were definite structural causes of insanity which in their very nature must be incurable. It was important to distinguish between such cases and the large group of functional cases, which, if they were put under treatment, would most of them be cured in much less than five years. The idea that a prospect of divorce would affect an insane person was wrong. In the majority of cases where persons had been under continuous treatment for five years the range of mental vision contracted.

Lord SALISBURY said they could not contest with Lord Dawson any matter of medical opinion, but he had put before the House a case in which the majority of insane persons would not recover, suggesting that a substantial minority would undergo the risk of divorce. It did not follow that because a man was insane he had not the most acute feelings.

Lord ADDINGTON said he had had experience with a mental hospital in the visiting and discharging of patients. Medical science had progressed in the twenty-five years since the Royal Commission, and his hospital hoped to be able to discharge as cured an increasing number of patients even after five years. Lord ELTISLEY remarked that the question of lunacy had been carefully considered by the Royal Commission and debated at great length in the House of Commons.

The view of the House of Commons had been that the paragraph under discussion should be inserted in the Bill.

Subsection (*d*), providing for divorce for incurable insanity after at least five years' treatment, was then accepted by 95 votes to 31.

Lord DAWSON then explained that on the advice of his legal friends he would postpone until the report stage his amendment to substitute another form of words for "incurably" in order to permit redrafting. He also added that he would not move an amendment in which he had intended to add to the grounds of divorce after Subsection (*d*) "or has during that period been subject to recurrent attacks of insanity." He said that in cases of cyclical insanity, dangerous as these people were to the happiness of their homes, he was afraid it would be true that when the patient came back from a period of insanity and re-entered the home he would suffer as a result of knowledge that he might be divorced.

HOMOSEXUALITY AND DIVORCE

Lord DAWSON moved an amendment providing that a petition for divorce might be presented on the ground that the respondent had since the celebration of the marriage been guilty of the practice of homosexuality. He said that some explanation was due from him in moving this addition. Homosexuality was now looked on as a pathological condition. He was not at all sure that in the future it might not be regarded as an insufficiency disease, and although it was true that the law must take cognizance of homosexuality and punish it in order to act as a preventive to potential offenders, the more reasonable view was gradually being adopted that it, at any rate, had one foot in the realm of disease and was not wholly in the realm of crime. He was not disputing the fact that the law must take serious cognizance of this offence, but he urged that this was an occasion for recognizing, with advancing knowledge, the increasing tendency to regard it as a pathological process, which concerned those who had to deal with disease. For the purposes of the Bill it would be entirely wrong to use any word which confined homosexuality to one sex. It was really time that there should be equality of treatment between men and women. For that reason, also, the insertion of this special paragraph was justified.

This particular offence was quite compatible with excellent qualities of mind and character. But such people would frustrate the purpose for which marriage existed, and it would be a grave injustice to recognize any marriage in which homosexuality turned out to be existent in either one of the parties. When that was discovered it ought to be a ground for divorce. As to cure, they were only on the brink of this question. For those who had a scientific interest it was a study of extraordinary fascination, and there was no doubt that a realm was being opened up which would enable more help to be brought to these people, provided they could be caught in the early stages. Whether they could be in later life he very much doubted.

Lord ELTISLEY said he did not fully understand what the amendment meant or what its ramifications were, or how it was to be carried out in practice by the courts of law if it was passed. What was clear, however, was that the purpose of the amendment was to put both sexes on the same footing with regard to homosexuality as a ground for divorce. He resisted the amendment because this recommendation was not one made by the Royal Commission, and it was dangerous to endeavour to introduce a new ground of divorce of this character into the Bill.

Lord DAWSON begged their lordships not to decide by the knowledge of years ago. If they were going to make a change on a matter like this, surely they must take cognizance of the progress in knowledge that had taken place in the last twenty-five years. If there was one thing that had been established in our legislation of recent years it was equality of the sexes, and this ought to cut both ways.

Lord ATKIN said he would not like it to be thought that the House of Lords rejected the more modern application of science as put forward by Lord Dawson without some reasoned objection to it. To begin with, he thought that it was not correct to say that these cases—Lord Dawson did not say so—were the result of something in the nature of disease. It was quite certain in one's experience that they were the result of wicked impulses which were capable of being controlled. Like other impulses of the kind they could be checked by advice and by resolution, and they did not appear to him to be of the nature of a permanent infirmity that was always likely to affect the married life. The real answer probably, at the present moment, was that this was a subject which required very careful examination. If some time or other a select committee or a departmental committee considered this subject in all its branches the result might be a very valuable report upon which the criminal law and the civil law might very well be amended. At present it would be a mistake to send this amendment to the House of Commons with the discussion that would be likely to arise about it.

The amendment was negatived.

DRUG ADDICTION

Lord DAWSON moved to insert as an additional ground for divorce:

> "is an habitual drunkard, or is an inveterate drug addict. For the purposes of these paragraphs a signed certificate will be required to be given in each case by two medical men, at least one of whom belongs to a panel of names approved by the Home Secretary on the nomination of the Royal College of Physicians, London."

Lord Dawson said that nothing broke up a home more than habitual drunkenness on the part of a woman or of a man, or drug addiction, and under the present law there was no power to cure such persons. Unless they were certified insane they could not be treated. If they became insane and were certified, then within a few weeks their addiction was sufficiently relieved for them to demand their release from certificate, and back they went to their addiction.

Lord BERTIE OF THAME moved as an amendment to Lord Dawson's to add:

> "The expressions 'habitual drunkard' and 'inveterate drug addict' mean a person who by habitual drinking to excess of alcoholic liquor or of addiction to drugs, as the case may be, is (*a*) at times dangerous to himself or to others or the cause of reasonable apprehension of such danger, or (*b*) incapable of managing his own affairs. The expression 'drugs' means drugs to which Part III of the Dangerous Drugs Act, 1920, applies."

Lord MERSEY said the question raised by Lord Dawson had been fully discussed in the House of Commons, which had decided that it was not desirable. Lord CECIL OF CHELWOOD pointed out that the provision of the Bill regarding insanity insisted that the insanity must be believed to be incurable, and that the person must have been under treatment for five years. No such provisions were suggested by Lord Dawson, and there was no definition of what was an habitual drunkard or an inveterate drug addict. Lord ELTISLEY did not think that it would be to the advantage of the Bill to insert the words proposed by Lord Dawson. Drunkenness was often accompanied by cruelty, and anyone who could prove that he or she was subject to habitual cruelty would be entitled to a decree. If the drunkenness was continual, even if the man was not actually cruel, he would be guilty in law of constructive desertion, and the injured spouse would be able to obtain a measure of relief provided the cruelty was continuous for three years.

Lord Dawson's amendment and the addition proposed by Lord Bertie were both negatived.

On Clause 5 (Decree of judicial separation) Lord ATKIN moved to insert words to provide that one ground for judicial separation should be a failure to comply with a decree for restitution of conjugal rights, and also that a decree might be granted on any grounds on which a decree for divorce *a mensa et thoro* might have been pronounced before the Matrimonial Causes Act, 1857. That would cover any attempt at rape and so forth, and also include cases of gross indecency, and would probably cover general cases of homosexuality. The amendment was agreed to.

On Clause 6 (New grounds for nullity) Lord CECIL OF CHELWOOD moved an amendment to Subsection 1 (*b*). This

subsection provides that a marriage shall be voidable on the ground that either party to the marriage was at the time of the marriage of unsound mind, or was at the time of the marriage or had been within twelve months of that time placed in an institution or under guardianship under Section 3, Section 6, Section 8, or Section 9 of the Mental Deficiency Act, 1913, or was at the time of the marriage subject to recurrent fits of insanity or epilepsy. Lord Cecil moved to provide that these causes should apply within twelve months after marriage. It would be a reasonable extension to the grounds of nullity to say that where the unsoundness became clear and evident within a year after marriage it might be presumed that the party was at the time of marriage not in a mental condition to give true assent. As he read the Bill it did propose that where one of the parties to the marriage was placed under restraint under the Mental Deficiency Act that should be a sufficient ground for a declaration of nullity.

Lord ATKIN said Lord Cecil's suggestion was contrary to principle. Nobody ever heard of nullity except on a ground which was existent at the date of marriage. Madness might arise twelve months after the marriage through a cause which had nothing in the world to do with the conditions at the marriage; it might be the result of childbirth. Lord DAWSON said mental disease might be so latent that it might be an unknown ground of suspicion. If in consequence of the marriage the symptoms were manifest and fully developed six or eight or nine months afterwards, it was often then possible to say that the vague symptoms of the earlier time had really been the beginning of a disease. The bulk of scientific opinion would be with Lord Cecil on that issue, but to establish the case the court would require to have before it scientists who would be able to give evidence whether that were true in the particular case or not.

Lord CECIL asked whether, before the report stage, they could not agree to accept a provision saying that the fact that one of the parties went mad within a year should be prima facie evidence which could be rebutted of unsoundness of mind at the time of the marriage. Lord ELTISLEY promised to consider the suggestion, and Lord Cecil withdrew his amendment.

On the motion of Lord GORELL paragraph (*b*) of Clause 6 (1) was replaced by a modified provision running as follows:

> "(*b*) that either party to the marriage was at the time of the marriage of unsound mind, a mental defective within the meaning of the Mental Deficiency Acts, 1913 to 1927, or subject to recurrent fits of insanity or epilepsy."

The committee negatived an amendment moved by Lord DAWSON OF PENN to insert the following new paragraph:

> "(*e*) that either party to the marriage has been within twelve months prior to the time of the marriage guilty of the practice of homosexuality."

Lord Dawson postponed to the report stage the question of amendments dealing with the communicability of venereal disease.

The committee stage was completed.

Attack on Animal Diseases

On June 29 the House of Commons debated in committee the financial resolution on which the new Agricultural Bill will be founded.

Mr. W. S. MORRISON, in moving the resolution, said that the Government's proposals included the inauguration of an attack on disease in flocks and herds of animals and in poultry on a scale greater than had ever been attempted in this country. It was proposed to use for this purpose the machinery of the Diseases of Animals Acts. An essential feature of that machinery was control at the ports, and another was the designation of areas in the country which were infected and the making of orders controlling the movement of animals within those areas and out of them into other parts of the country. In this way various diseases had been tackled with success in the past. The position with regard to tuberculosis, to which other machinery had been applied, had, however, tended to deteriorate. That was due partly to the increased mobility of modern life. A greater number of animals had had to be transported from one part of the country to another, and there was a development of dairying on a "flying herd" basis, where a man bought cattle which travelled long distances, and which came from a source of whose freedom from infection he was ignorant. The Gowland Hopkins Committee reported in 1934, and estimated that 58 per cent. of the dairy cattle leaving herds were disposed of on account of disease; that the average productive life of dairy cattle was under four and a half years, or half what it should be; and that 40 per cent. of the cows were infected with tuberculosis in various degrees, and about the same proportion had contagious abortion. The total burden of the diseases among all kinds of livestock had been estimated at about £14,000,000 a year.

PROPOSED CENTRALIZED VETERINARY SERVICE

It was clear that the eradication of disease, if they were only half successful, would be a most valuable service to agriculture. So far they had tackled it in two ways. There was the Tuberculosis Order of 1935 under the Diseases of Animals Act. That prescribed rules whereby cattle which were very badly infected with tuberculosis, so as to be visibly infected and dangerous, might be slaughtered and compensation paid. But that Tuberculosis Order did not touch cattle which could not be so described but were none the less reactors to the tuberculin test and might be conveyors of the disease. The second way in which they had tackled it had been by legislation directed to the purity of the milk supply as a public health service. That had been administered by local authorities in England and Scotland with varying results. It was now proposed to tackle this immense problem as what it was—namely, a problem of the diseases of animals—by the diseases of animals machinery, by a single island service of veterinary officers for the purpose. It was not a problem which farmers themselves could possibly solve. It was the result of many generations of neglect, and one generation of farmers could not provide a cure for it. But farmers could, if this service was provided for them and they co-operated with it, rid themselves by degrees of a heavy burden and toll of disease.

Nor could this problem be solved under the present system, whereby local authorities, with their varying resources and standards, were grappling with it. It was not the men but the system which was at fault. What was wrong was the varying standards of administration, very often due to varying rateable values and resources. As a result of that variation they found that good work which had been done in one county might be hampered and destroyed by less good work in an adjoining one. The division of areas by counties was not the same thing as the designation of areas on account of the amount of disease or absence of disease in them. A second fault in the present system was that the powers of local authorities, regarding the matter as a milk problem, were inadequate. The surest way of getting tubercle-free milk was to get cows free from tubercle in the first instance. The attack on tuberculosis had hitherto been carried out in detachments, with a local force sometimes getting out of touch with its neighbour and liable from that cause to encirclement by the enemy and to frustration. What was needed was not so much a change in tactics as a more comprehensive strategy. The Government's proposals sought this more comprehensive stategy by the creation of a centralized veterinary service for the whole island to combat the diseases of animals and of poultry in all their manifestations.

POSITION OF VETERINARY OFFICERS

This was largely a veterinary problem, and veterinary opinion was in favour of the proposals. Some apprehensions had been expressed because the Government was setting up this State centralized service of veterinary officers, that in some way part-time practising veterinary surgeons would have their living interfered with, but there was no ground at all for that fear. Where veterinary surgeons were now employed on a part-time basis by local authorities it was certain that they would have to employ them on the same basis to carry out tests and do other work similar to that which they were doing now. Indeed, it was true to say that by making the

agricultural community more conscious of the importance of disease among livestock, there was a greater prospect of these practitioners finding their services utilized. He hoped to see from this a rise in the whole status of the veterinary profession in this country which would be of lasting benefit to agriculture and the nation.

Mr. T. WILLIAMS said that the Gowland Hopkins report, which was published in 1934, pointed out that 40 per cent. of our dairy cows were reactors, and that there were no signs of diminution. The life of a dairy cow was about four and a half years when it very well might be eleven or twelve years, and the annual loss due to the death of dairy cows sold for the meat market lest they contracted tuberculosis in an acute form was about £3,000,000. The Opposition wanted to see in existence as soon as possible a national veterinary service with full power to act, so that no county which ignored its responsibilities would affect adjoining counties in which people were doing their best to clean up their herds.

NEW ATTESTED HERD REGULATIONS

Mr. W. ROBERTS said they all welcomed the proposals for disease control, but he was rather surprised at the Minister's remarks about the reorganization proposed in regard to the veterinary services. There were at present several types of authority or organization which might in some cases deal with the matter. The local authorities had up to now had to carry out the administration of the Milk and Dairies Order. Was the administration of that Order under the 1922 Act to be taken over from the local authorities and centralized under veterinary officers, who were to carry out the work on behalf of the Government direct? He took it that it was the new services under this particular resolution which were to be carried out by a staff of veterinary officers directly responsible to the Ministry. On the whole he welcomed that, and he hoped that the new attested herd regulations would be more effective than the old ones. Under the attested herd scheme the main encouragement was the 1d. a gallon which the farmer might get on his milk, but there were many farmers in the high-lying districts who concentrated on breeding stock, and some encouragement should be given to them to clear their herds of tuberculosis.

Mr. PRICE was glad the Government proposed to deal with bovine tuberculosis on the basis of areas. He was also glad that the veterinary services were to be brought under a more central control, but there was an invaluable private veterinary service in this country which was of tremendous assistance to farmers, and which he hoped would not be jeopardized.

Mr. HOPKIN said it was not possible now to provide attested milk for the school scheme because there was not enough. The Minister ought, as soon as possible, to see that milk of the best quality and the highest purity was obtained by the school children before anyone else. He was glad that this scheme was joined up with a planned attack on contagious abortion, but the amount to be spent on that was far too little. Sir FRANCIS ACLAND said he believed he was acquainted with members of the medical profession who would, with the present standard of knowledge existing, be capable of preparing—not a live vaccine, which was itself dangerous—but a dead inoculum, which could be inoculated into calves at birth and would protect them from any risk of tuberculosis. If that system could be worked out and made generally applicable they could get rid of tuberculosis within one generation of cattle.

VETERINARY SERVICES IN SCOTLAND

Mr. HENDERSON STEWART moved an amendment to retain for Scotland the general autonomy in administration which under the Scottish Office was now enjoyed, and to preserve the present high standard of veterinary services in Scotland. He said that the Government's proposal would take from the local authorities in Scotland and the supervision of the Scottish Office the various services now administered in Scotland under a series of different Acts, including the Milk and Dairies Act, the Attested Herd Scheme, the Milk (Special Designation) Order, the Meat Inspection Act, etc. These services were of a much higher standard, he believed, than was to be found south of the Border. Under the Milk and Dairies Act, 1914, the duty was laid on local authorities in Scotland to carry out at least one clinical inspection per annum of the dairies in the country. Local authorities in this country had no such duties imposed upon them; they had the power, which they might use as they desired. Since 1914, under the continual pressure of the Scottish Office and of different Secretaries of State, the annual inspection had been multiplied by three, so that in 75 per cent. of local authority areas in Scotland there were no fewer than three inspections per annum of the cows and dairies. To carry out that inspection the Scottish Border local authorities employed forty-two full-time veterinary surgeons and fifty-eight part-time veterinary surgeons. The process of the cleaning up of herds had advanced in Scotland to a very considerable extent. It would, he thought, be impossible to bring the standard of veterinary services in England up to that of Scotland within a reasonable measure of years, because there were not the veterinary surgeons available to provide the whole country with the same intensive inspection as in Scotland.

Mr. WEDDERBURN said it was true that the Milk and Dairies Act began to be applied in Scotland in 1925, whereas in England no similar steps were taken until the passing of the Milk Act in 1934. Therefore for twelve years they had now had a very efficient service in Scotland for the eradication of tuberculosis, which had resulted in there being more attested herds and a smaller proportion of tuberculous cows in non-attested herds in Scotland than in England. There was not the slightest reason why the efficiency of that service should be in any way affected by the centralization. On the contrary, backward areas were more likely to be brought up to the standard of the more progressive authorities in Scotland than they would otherwise be. The Minister was very much alive to the administrative advantages of securing the closest possible connexion between the Scottish veterinary service and Scottish opinion, and to secure this he was prepared to consider the appointment of a separate permanent officer in Edinburgh to keep in touch with the Scottish officers. There would certainly be no reduction in the number of inspections yearly, and there would probably be an increased number of inspections in the minority of counties. If Mr. Stewart's amendment was carried it would involve a separate service for all animal diseases in Edinburgh. The Diseases of Animals Act had been a United Kingdom service for the last forty years. Under that service was administered not only such things as control of sheep scab and foot-and-mouth disease, but also the tuberculosis order in regard to the slaughter of beasts. All that was done at present by the Ministry of Agriculture, but if they were to have a separate tuberculosis service in Scotland it must involve removing the Diseases of Animals Act administration from the present United Kingdom service to a separate new service in Edinburgh. There were serious objections to that course.

Mr. HENDERSON STEWART asked leave to withdraw his amendment, but the Labour Party opposed this. The amendment was negatived by 210 to 111, and the resolution agreed to.

Pensions of Local Government Officers

The Local Government Superannuation (Scotland) Bill was before a standing committee of the House of Commons on June 29. Mr. NEIL MCLEAN referred to the provision of Clause 35, which allowed the Secretary for Scotland and the Minister of Health to make regulations concerning the rights and liabilities of a person exchanging from employment with a local authority under the English Act for employment with a local authority under the Scottish Act or vice versa.

On the motion that Clause 3 stand part of the Bill Mr. WEDGEWOOD said that Subsection 4 of this clause cut out persons who were subject to the Asylums Officers' Superannuation Act of 1909. He understood that in East Lothian there were individuals who might be cut out of this scheme although there was no other scheme for them at the present time. Dr. ELLIOT said he would do his utmost before the report stage to clear up this point in consultation with the local authorities. The clause was then added to the Bill.

On Clause 5 (Power to admit employees of statutory undertakings and registration officers) Mr. J. F. C. REID, Solicitor-General for Scotland, moved to insert:

> "Where the local authority, being a local authority as defined in the Maternity Services (Scotland) Act, 1937, has made arrangements under Subsection 1 of Section 1 of that Act with a voluntary association for the employment of certified midwives by that association the provisions of Subsection 1 of this section shall apply in relation to statutory undertakers and to employees of those undertakers."

He said that under the recent Maternity Services Act for Scotland there was a provision that a local authority might make arrangements with a voluntary association whereby the necessary midwives in their area were provided by the association. The amendment would give midwives who were engaged through the medium of an association rights similar to those of persons employed by a local authority itself. This applied only to whole-time midwives who were virtually engaged in municipal work. He could not say at the moment whether it would be possible to make with the Queen's nurses the type of arrangement referred to in the Maternity Services Act. The Government would consider the matter. The amendment was accepted, and the clause as amended added to the Bill.

On Clause 6 (Contribution) the committee accepted an amendment proposed by Mr. REID to enable provision for pension rights at the higher rate to be maintained in a case where a man kept the same post but his remuneration was reduced owing to advancing age. The clause as amended was ordered to stand part of the Bill, and after further discussion the committee adjourned until July 1.

On resumption on Clause 16 (Female nurses, midwives, and health visitors) the committee agreed to an amendment proposed by Dr. ELLIOT enabling local authorities to grant compensatory allowances to nurses, midwives, and health visitors although they had not completed forty years' service at 60 years of age. He said the allowance would be an amount not exceeding the difference between the pension to which a person was entitled under the Bill and the pension she might have earned had she continued to serve until she was 65. The clause as amended was agreed to.

On Clause 22 (Modification and replacement of local authorities superannuation scheme) Mr. REID moved an amendment which, he said, would bring into the local acts similar provisions to those which the committee had passed in Clause 3 dealing with contributory employees. The amendment would not deprive anybody of any existing rights and local Acts, and it would safeguard existing practices and provisions affecting authorities which had local Acts. Certain authorities had in operation medical examinations before accepting candidates for office, and the amendment would preserve that practice where it existed. Dr. ELLIOT said the Government would consult the local authorities and draw their specific attention to the amendments that had been made. The committee agreed to the amendment and ordered the clause to stand part of the Bill.

After further amendments Dr. Elliot proposed a new clause dealing with the rights of whole-time officers appointed in a temporary capacity. He said its effect was to secure that in the case of an officer expressly engaged in a temporary capacity for a period of not more than two years a local authority might determine that that officer should not be a contributory employee, but that at the end of two years' local government service, whether continuous or not, such an officer would automatically become a contributory employee whether he remained with the same authority or transferred to another within twelve months.

The clause was approved and added to the Bill.

Drafting amendments were made in the second Schedule (Provisions as to asylum employees), and the Bill as amended was reported to the House.

Government and Cheap Milk

On July 5 the House of Commons in committee considered the financial resolution on which the Bill amending the Milk Acts, 1934 and 1936, will be based. Mr. RAMSBOTHAM, in moving the resolution, said that it regularized the payments of the English Milk Marketing Board to producer-retailers who had taken part in experimental schemes for the supply of cheap milk for nursing and expectant mothers and children under school age in certain parts of the Special Areas. Doubt had arisen whether it was within the legal power of the Board to make these necessary rebates to the producer-retailers, and the resolution would put that beyond doubt.

Mr. JOHNSTON said that the Government was subsidizing milk in schools, and school children were being sold milk at 1s. a gallon. Everybody applauded that, and every medical officer of health, educationist, and nutritionist said that the Government was on the right lines. In the case of children of 4, 3, and 2 years old, babies, the sick and nursing mothers the price was 2s. a gallon. Why should the Government continue to make this difference in the charges? Instead of allowing milk to be diverted to the factories the Government should say to every medical officer of health that as long as a mother with young children cared to go or to send to any authorized distributor of milk she should get it at the same price as that at which it was supplied to the schools.

Mrs. TATE said she had constant complaints from mothers of children at schools that one reason why they did not care for the milk was that it was pasteurized. It was time that there was a real impartial inquiry into the relative nutritive value of pasteurized and unpasteurized milk. The milk-in-schools scheme had been in operation for three or four years, and there should be leaving school a generation of children who had acquired a taste for pasteurized milk. If inquiry were made, however, she thought it would be found that very few children who had left school had continued the milk habit.

Mr. W. S. MORRISON, replying to the debate, said questions had been raised about the pasteurization of milk and other matters which were of great interest to him in attempting to formulate a Government policy on the question of milk. All he asked the committee to do that night was to agree to extend the existing provisions for another twelve months so that he might get some other opportunity of laying before Parliament legislative proposals of a more permanent character.

The resolution was accepted.

On July 6 in the House of Commons the financial resolution on the Milk (Amendment) Bill was agreed to on report, and Mr. RAMSBOTHAM introduced the Bill.

Institutional Treatment of Pulmonary Tuberculosis.—Sir KINGSLEY WOOD told Mr. Messer on June 17 that the numbers of cases of pulmonary tuberculosis treated in public health and approved residential institutions in England and Wales were: 1934, 39,856; 1935, 40,484; 1936, 41,630.

Gas Masks for Civilians.—Up to June 19 9,000,000 gas masks had been made under the Home Office scheme. Mr. LLOYD stated, on June 24, that the United Kingdom had a larger number of gas masks for the civil population than had any other country in the world. The final stage had been reached in preparing the handbook for householders on air raid precautions.

Results of School Medical Inspection at Leicester.—On June 21 Mr. KENNETH LINDSAY, replying to Mr. Lyons, said that during the year ended December 31, 1936, 12,356 school children in the city of Leicester were examined at routine medical inspections and 15,882 at special inspections. There were also 26,257 reinspections. The number of children found at routine medical inspections to require treatment for defects other than defects of nutrition, uncleanliness, and dental diseases was 1,569. Information was not available to show the number of children found to require treatment at special inspections, but 11,277 defects requiring treatment were found. On December 31, 1936, six whole-time medical officers were employed by the local education authority in the work of medical inspection and treatment.

Corporal Punishment in Schools.—Mr. KENNETH LINDSAY, on June 21, informed Mr. Sorensen that the administration of corporal punishment in the schools was a matter which

had always been regarded as within the discretion of the school authorities, and the President of the Board of Education did not see any reason to vary that policy. He was satisfied that during recent years there had been a welcome decrease in the infliction of corporal punishment as a means of maintaining discipline.

Inquiry into the Use of Celluloid.—Mr. CARTLAND, on June 22, asked the Home Secretary whether he had yet set up the departmental committee to inquire into the question of the danger to children and others arising from the use of celluloid toys and other articles, and, if so, what were its terms of reference. Mr. LLOYD replied that Sir Vivian Henderson, formerly Parliamentary Under-Secretary at the Home Office, had consented to act as chairman of this committee, and the Home Secretary hoped that its composition would soon be completed. Its terms of reference would be: "To inquire into the use of celluloid and any similar highly inflammable material in the manufacture of toys, fancy goods, articles of attire, toilet requisites, and the like, and to consider what steps are desirable and practicable against the danger arising to the public, and especially to children, from such use."

Protective Equipment for Mine Workers.—On June 22 Mr. T. SMITH asked to what extent protective equipment in the way of helmets, gloves, etc., was employed in the coalfields. Captain CROOKSHANK said that the reports for 1936 of the divisional inspectors and of the Safety in Mines Research Board, which would shortly be published, showed that satisfactory progress had been made in the coalfields in the use of protective equipment. Hard hats, for example, were bought at a rate of more than 12,000 a month. He wished to express his appreciation of the keenness and co-operation shown by all sections of the industry, which had enabled a gratifying measure of progress to be attained.

New Mental Institution for Surrey.—Mr. BERNAYS informed Mr. De Chair on June 24 that the Surrey County Council proposed to exercise compulsory powers to acquire Merrist Wood Hall, Worplesdon, for a lunatic asylum. A public inquiry would be held at which objections would be heard, and Sir Kingsley Wood would carefully review all the circumstances before coming to a decision.

Scheme of Cheap Milk in the Special Areas.—On June 28 Mr. W. S. MORRISON informed Mr. J. Griffiths that the schemes for the supply of cheap milk in the Special Areas had been inaugurated for experimental purposes by the Milk Marketing Board, with the co-operation of local distributors and of the local authorities concerned, and with financial assistance from the Commissioner for the Special Areas. The Board was of opinion that fuller information on the working of the present schemes was desirable before further action along these lines could be considered.

Practical Dietetics in Schools.—On June 29 Mr. HEPWORTH asked what steps were taken to teach practical dietetics in schools, with special reference to the value of body-building foods. Mr. KENNETH LINDSAY replied that cookery was a regular subject in the education of the older girls in public elementary schools. The curriculum generally included such instruction and training in the principles of proper dieting and their application as were suitable for girls of 12 to 14 years. Some 90 per cent. of all the older girls attending the elementary schools, and rather more than 80 per cent. of those educated in secondary schools, were attending schools in which such instruction was provided.

Medical Examination in Drunkenness Charges.—Answering Sir John Mellor, Sir SAMUEL HOARE said all police forces had instructions that if a prisoner in custody on a charge involving drunkenness desired to be examined by a doctor selected by himself the request was to be complied with on the understanding that the prisoner would be responsible for the doctor's fee.

Notes in Brief

In 1936 the number of certificates of disablement or death from silicosis issued by the Medical Board was 727, including 197 certificates in respect of death.

Medical News

The second World Congress on Mental Hygiene will be held at the Centre Marcelin-Berthelot, Paris, from July 19 to 25. The subjects to be considered include eugenics in the prophylaxis of mental diseases, mental hygiene and sexuality, training at different ages and in various occupational and other environments, administrative and legislative problems, indications for research and propaganda work, and certain psychological aspects. Sir Hubert Bond will propose an international classification of mental affections with respect to nomenclature, Professor D. K. Henderson will open a discussion on the individual and social prophylaxis of suicide, Professor C. I. Meyers will deal with mental hygiene in intellectual work, and Dr. W. M. C. Harrowes will submit a communication on the mental hygiene of the adolescent. Visits have been arranged to mental hospitals near Paris, psychotechnical laboratories, colonies for abnormal children, and Versailles. There will be an exhibition to illustrate the work in various countries in connexion with mental hygiene. Copies of the full programme may be obtained from the secretary of the National Council for Mental Hygiene, 76 and 77, Chandos House, Palmer Street, London, S.W.1.

The sixth International Montessori Congress will be held in Copenhagen under the auspices of the Danish Minister of Education from August 1 to 10. Dr. Maria Montessori will speak on the central subject of the congress, "Educate for Peace," and the opening session will be broadcast. Particulars may be obtained from the General Director, International Montessori Association, 1, Hampstead Hill Gardens, London, N.W.3.

Professor Georges Portmann of Bordeaux and Paris will hold a course in English of practical classes in oto-rhino-laryngology from July 26 to August 29. This will include anatomical demonstrations, various operative procedures, clinical examinations, bronchoscopy, oesophagoscopy, and direct laryngoscopy, with attention to special methods of diagnosis and treatment. Further information may be obtained from Professor Portmann, 15, Rue Franklin, Paris.

The Minister of Health, in accordance with an announcement recently made by him in the House of Commons, has arranged for two officers of his Department, Colonel L. W. Harrison, D.S.O., M.B., and Mr. D. C. L. Ward, accompanied by Dr. Margaret Rorke, director of the venereal diseases department at the Royal Free Hospital, to pay a short visit to Sweden, Norway, Denmark, and Holland for the purpose of studying the systems in operation in those countries for combating venereal diseases. The party left London on July 12, and will be joined later by Dr. T. Ferguson of the Scottish Department of Health.

The issue of *La Presse Médicale* for June 26 is devoted to the International Exhibition in Paris.

The issue of *Le Sud Médical et Chirurgical* for June 15 is devoted to Italian medicine, the contributors being professors from Madeira, Catania, Pisa, Cagliari, and Florence.

The July issue of the *Practitioner* is devoted to the care of the aged, the first article, on "Old Age," being written by Sir Robert Armstrong-Jones.

The Secretary of State for Scotland has appointed Dr. R. P. J. McBroom, senior assistant medical officer at Argyll and Bute Mental Hospital, Lochgilphead, to be a Deputy Commissioner of the General Board of Control for Scotland.

Dr. William Ferriday Jackson has been appointed a Justice of the Peace for the City of Manchester, and Dr. William Edward Houlbrook a Justice of the Peace for the County of Derby.

A new clinic for tropical diseases has been opened in the Policlinic at Naples under the direction of Professor Boeri.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Cancrum Oris

Professor G. GREY TURNER, in reply to Dr. Hope Trant (*Journal*, July 3, p. 48) writes: May I say that for many years I have tried practically all methods of treatment, and have been forced to the conclusion that it is best to treat the condition like an acute infective gangrene, and to excise the involved area with the diathermy knife, taking care to cut through the healthy tissues to about a quarter of an inch beyond the spreading edge. Any areas that cannot be excised in this way should be thoroughly treated with the coagulating current. The mutilation involved may be serious, but is no worse than the loss of tissue which is inevitable, and it does hold out a better prospect of recovery than any other form of treatment with which I am familiar.

Vaccines Protecting against Influenza

Dr. CLAUDE A. P. TRUMAN (Exford) writes in reply to Dr. H. V. Mitchell (*Journal*, June 26, p. 1352): A few years ago I had occasion to immunize fifty patients and the staff of an institution against diphtheria. The influenza season was at hand, and a bad epidemic followed shortly. Only two of those inoculated suffered slightly, but the year before they had all succumbed. The same thing happened when the effects of the inoculation had worn off in a year's time. The numbers affected and not affected would appear to rule out coincidence.

Splitting Finger-nails

"A. M. B." writes: I am satisfied that this condition is the result of excessive filing—modern methods of manicure—as opposed to cutting. A blacksmith pares a hoof before using a file.

Income Tax

Assessment of House

"X. X." owns a house valued at £1,500, let at £85 per annum and assessed at £80 gross. He wishes to make alterations costing £400 and to recoup himself by charging additional rent, and inquires as to the effect on the assessment.

*** One result of effecting the alterations will be that the property will come up for reassessment as if it were a different entity—and the fact that it is at present assessed at £80 will not have much, if any, effect. If he increases the rent by, say, 8 per cent. of £400 (to cover interest and sinking fund) the authorities will be entitled to fix the new assessment at £85 + £32 = £117 gross. As against this, however, "X. X." will be entitled to claim against the net assessment the amount of interest paid by him to a building society if the £400 is found in that way. If the tenant signs jointly and pays the £32 to the building society, "X. X." will not receive the allowance, but he will pay more income tax than at present because of the increase in the Schedule A assessment—which will presumably be the same whichever arrangement he made with regard to the interest.

Employment Abroad—Visit to United Kingdom

"EXILE" is employed in the Colonial Medical Service. His wife and son reside in a furnished flat in London, and he remits money to them from abroad. He proposes to come to England in July for six months or so. Will he be liable for income tax, and, if so, would that be affected by restricting the period of his stay in the United Kingdom or making special arrangements with his bank abroad.

*** He will be liable to assessment as for the financial year 1937–8, whether he is here for six months or less. The amount of the gross assessment will be determined by the total amount of income received in, remitted to, or brought to the United Kingdom, but of course he will be entitled to the usual deduction of £180—married personal allowance—and to £60 child relief. The only means of reducing his liaiblity would seem to be by restricting the amount of income received here, for example, by allowing it to accumulate abroad and covering his expenditure here by realizing capital investments; but if he proposes to make some arrangement of that kind legal advice should be taken, as the matter is one of considerable difficulty.

LETTERS, NOTES, ETC.

Coffee and Liquor

H. KOOPMANN and H. KEMPSKI (*Münch. med. Wschr.*, May 14, 1937, p. 780) have carried out a number of investigations on the influence of the consumption of coffee on the concentration of alcohol in blood and urine in persons under the influence of drink. They were able to confirm the well-known sobering influence of coffee, which takes place in spite of the fact that the concentration of the alcohol in the blood remains unchanged. At the same time the alcoholic breath becomes less pronounced, though only temporarily. The concentration of alcohol in the urine increases after the consumption of coffee and eventually becomes greater than the concentration of alcohol in the blood. Therefore, from the medico-legal point of view the concentration of alcohol in the urine is of no significance without a simultaneous examination of the concentration of alcohol in the blood in persons suspected of being under the influence of drink who have partaken of coffee afterwards.

Hairpin in Bladder

Mr. FAUSET WELSH, F.R.C.S., writes: Some years ago I was asked to see a girl of 15 who, out of anatomical curiosity, had inserted a hairpin, three inches long, into her urethra. The hairpin had slipped into the bladder, and was causing her much pain. With an operating cystoscope it was seen to be wedged firmly in the transverse plane in the centre of the bladder. Filling the bladder with fluid did not dislodge it, and the cystoscopic forceps failed to secure a good enough grip to turn the hairpin; nor was this possible when tried through a direct vision straight cystoscope. Ultimately the following manœuvre was successful. A straight pair of urethral forceps were introduced into the bladder through the urethra and the hairpin grasped by the middle. This was accomplished by sense of touch only. A second pair of similar forceps were passed alongside the first pair, and the hairpin grasped nearer to the junction of its two limbs. The first forceps were withdrawn and reintroduced still nearer to the junction, and so on, until the junction was grasped and drawn down easily through the urethra.

Medical Golf

The Irish Medical Golfing Society recently held a meeting with the following results. The Brady Cup (Mersea Island): R. Lindsay Rea (11), 4 up. Holmes Cup (Moor Park): H. O'N. Butler (18), L. F. Clarke (1), and R. B. Quinn (10) finished level with 75; the first-named won over the second nine holes. Lane Cup: E. T. McElligott (8), who was the winner over the second nine holes, J. L. Walsh (10), and L. F. Clarke (1) were level, 1 down. Scratch Prize: L. F. Clarke, 76. In the Corbett Cup, for those with a handicap of 16 and over, E. F. Kelly and J. Speares tied with 81, the former winning with a better score over the second nine.

We have received from Messrs. George Borwick and Sons, Ltd., a sample of their product Lemon Barley Powder which, dissolved in cold water, makes quite a pleasant summer drink.